IMPACT OF HUMAN RESOURCE MANAGEMENT ON FEDERAL EMPLOYEES’ POSITIVE ATTITUDES AND BEHAVIORS
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ABSTRACT

This dissertation presents three article manuscripts investigating contemporary human resource management issues in the United States (US) federal government. Drawing on the behavioral public administration approach, the three articles hypothesize and test theoretical models using data from the US Office of Personnel Management’s employee surveys. Chapter 1 introduces the motivation of this dissertation, theoretical backgrounds, and a summary of the three research studies conducted. Chapter 2 presents the first article manuscript, looking at the generational difference issue and its implications for theories and practices. Drawing on generational theories, this study empirically compares affective commitment of federal Millennials and Generation Xers. This study uses time-lag data from the 2011 Federal Employee Viewpoint Survey (FEVS) and the 2004 Federal Human Capital Survey (FHCS). The results show no statistically significant differences between the two generations in terms of their affective commitment levels and how several work experiences influence the two generations’ attitude. As such, this study provides evidence to reduce generational stereotypes in the public sector. Chapter 3 draws on conservation of resources theory to address perceptions of workload in the public workplace. Using structural equation modeling method with data from the 2019 FEVS, this study finds that supervisor support can sequentially help enhance coworker support, perceived reasonable workload, and job satisfaction, while tangible job resources moderate the above relationship. This study deepens scholarly understandings and points to appropriate practical strategies to enhance employees’ perceptions of reasonable
workload and job satisfaction in public workplaces. Chapter 4 looks at the issue of trust in different levels of management and its effects on employees, building on the trickle effects models and job demands-resources model. Analysis of 2019 FEVS data finds that employee trust in senior leaders and direct supervisors are positively related to as well as interact with each other to influence public employees. This research also finds trust in senior leaders and direct supervisors indirectly affects extra-role behavior through psychological well-being, and that workload moderates these effects. Chapter 5 concludes this dissertation with summaries of research findings, theoretical and practical implications, research limitations, and future research directions. The quantitative empirical methods used in this dissertation contribute to a community of inquiry using diverse data and methods.
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GENERAL AUDIENCE ABSTRACT

This dissertation investigates issues related to managing people in the US federal government. Chapter 1 introduces the motivation of the study, lays out the theoretical background, and presents a brief summary of the three research studies conducted. Chapter 2 examines whether federal employees belonging to the Millennial generation (those born between 1982 and 1999) differ from those of the Generation X (those born between 1965 and 1981) in their affective commitment (how much they like to stay with their organizations), and how job experiences influence the attitude of these generations. The findings show no substantial differences between the two generations, providing evidence to reduce generational stereotypes in the public sector. Chapter 3 investigates the ways to help employees feel their workload as more reasonable and enhance their job satisfaction. It found that supervisor support can sequentially help enhance coworker support, perceived reasonable workload, and job satisfaction, while tangible job resources moderate the above relationship. As such, this study suggests appropriate management strategies to enhance employees’ perceptions of reasonable workload and job satisfaction in public workplaces. Chapter 4 looks at the issue of trust in different levels of management and its effects on employees. It found that employee trust in senior leaders and direct supervisors can influence as well as enhance the effect of each other on employees. Also, trust in senior leaders and direct supervisors indirectly affects extra-role behavior (behavior that goes beyond a formal job description) through psychological well-being. Meanwhile, reasonable workload enhances the effect of trust in senior leaders.
on employees but decreases the effect of trust in supervisors on employees. Chapter 5 concludes this dissertation with summaries of research findings, the contributions of this dissertation, research limitations, and future research directions.
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Attribution

Dr. Luu Trong Tuan aided in the writing behind Chapter 4 presented as a part of this dissertation.

Chapter 4. Trust in multi-level managers and employee extra-role behavior in the US federal government: The role of psychological well-being and workload

Dr. Luu Trong Tuan is currently an associate professor at Swinburne Business School, Swinburne University of Technology, Australia. He served as a co-author on the research presented in Chapter 4 of this dissertation and helped refine arguments and writing in this research.
# Table of Contents

Chapter 1. Introduction ........................................................................................................... 1
   References......................................................................................................................... 15

Chapter 2. Are Millennials different? A time-lag study of federal Millennial and Generation X employees’ affective commitment ............................................................. 24
   Abstract ......................................................................................................................... 24
   Introduction .................................................................................................................... 25
   Literature Review and Hypothesis Development .......................................................... 28
      Generation theories ..................................................................................................... 28
      Millennials and Generation Xers ................................................................................. 30
      Work experiences, generations, and affective commitment .................................... 32
   Method .......................................................................................................................... 38
      Data ............................................................................................................................. 38
      Variables ..................................................................................................................... 39
      Model of interest ....................................................................................................... 41
      Analysis strategy ....................................................................................................... 41
   Results ............................................................................................................................ 41
   Discussion ...................................................................................................................... 46
      Theoretical implications ............................................................................................. 46
      Practical implications ................................................................................................. 49
      Limitations .................................................................................................................. 50
      Future research directions ......................................................................................... 51
   References ...................................................................................................................... 52
   Endnotes ......................................................................................................................... 67
   Appendix ....................................................................................................................... 68

Chapter 3. Creating perceptions of reasonable workloads to enhance public employee job satisfaction: The role of supervisor support, co-worker support, and tangible job resources ........................................................... 69
   Abstract ......................................................................................................................... 69
   Introduction .................................................................................................................... 70
   Literature review and hypothesis development .......................................................... 74
      Conservation of resources (COR) theory .................................................................. 74
Analysis Strategy ........................................................................................................... 126
Results.......................................................................................................................... 127
Validity and Reliability of the latent constructs ............................................................ 127
Hypothesis testing ......................................................................................................... 129
Discussion ...................................................................................................................... 134
Theoretical implications ............................................................................................... 134
Practical implications .................................................................................................... 137
Limitations and future research directions .................................................................... 138
References ..................................................................................................................... 140
Appendix ......................................................................................................................... 150
Chapter 5. Conclusion .................................................................................................... 151
References ..................................................................................................................... 160
Chapter 1. Introduction

Effective human resource management (HRM), providing appropriate workplace policies and support, is vital for the success of public organizations. Effective HRM practices can help promote positive attitudes and behaviors, enabling employees to meaningfully contribute to their organizations and attain increased levels of well-being. For instance, HRM research suggests that public employees with higher levels of affective commitment, which is “emotional attachment to, identification with, and involvement in the organization” (Meyer, Stanley, Herscovitch, & Topolnytsky, 2002, p. 21), may perform higher quality of work (Park & Rainey, 2007), may be more innovative (Brimhall, 2021), more willing to work for the benefit of their organizations (van Gelderen & Bik, 2016), and less likely to resign (Van Waeyenberg, Decramer, Desmidt, & Audenaert, 2017). Positive attitudes and behaviors may even improve employees’ well-being by reducing stress (Cantarelli, Belardinelli, & Belle, 2016) and burnout (Jin & Guy, 2009).

Great effort has been devoted to improving the effectiveness of personnel management in the federal government. These efforts have been identified in areas like managing for results (Yang & Kassekert, 2010; Yang & Pandey, 2009), decentralizing decision-making authority (Meyer & Hammerschmid, 2010), building a supportive diversity climate (Moon, 2018), and promoting family-friendly policies (Feeney & Stritch, 2019; Kim & Wiggins, 2011). Despite such efforts, new issues and contexts continue to arise, challenging the effectiveness of the current practices as well as our knowledge about the field of personnel management. As such, new scholarship is required to help effectively manage people in the public workplace.

This dissertation brings together three article manuscripts addressing three dimensions of HRM that are still understudied in the federal government in specific and the public sector in general. These include: (i) whether and how public managers need to pay attention to generational differences and design distinctive workplace policies and practices for different
generations; (ii) how supervisors can design reasonable workloads to enhance employee job satisfaction in the context of increasing work demands in the public sector; and (iii) how to manage different levels of management to enhance its effectiveness on employees, given the hierarchical systems are prevalent in the public sectors. The following paragraphs will explain these contemporary personnel management issues in more detail, thereby providing research background and the motivations of this dissertation.

As members of each new generational cohort enter the public sector workforce, questions are raised about whether this new generation is really different from those prior, and whether designing new HRM practices to target them is worth doing. The work-related attitudes of Millennials have received extensive coverage in the mass media as well as in academic journals. Commonly, Millennials are portrayed as narcissistic, materialistic, entitled, and more likely to quit their jobs (Anderson, Baur, Griffith, & Buckley, 2017; Brant & Castro, 2019; Holtschlag, Masuda, Reiche, & Morales, 2020; Twenge, Campbell, Hoffman, & Lance, 2010; Twenge & Kasser, 2013). As such, many commentators suggest specific strategies to accommodate the distinctiveness of members of this generation to attract and retain them (Anderson et al., 2017; Ebeling, Dent, & Kempenich, 2020). In the public sector, despite little systematic empirical research backing it up, public managers hear a lot about the need to adjust their working environment to accommodate the distinctive needs of Millennials (e.g., Hamidullah, 2015; Owen, 2020). Tailoring management practices to generational stereotypes without reliable evidence is costly (Costanza & Finkelstein, 2015; Lyons & Kuron, 2014), therefore scholarly research providing evidence on generational differences in the public workplace is essential to help public managers navigate their changing workforces. Despite this, contemporary public management literature falls short in offering sufficient and reliable evidence about generational
differences at work, especially possible distinctions between the two generations representing the large portions of the public sector workforce in the coming years: Millennials (those born between 1982 and 1999) and Generation X (those born between 1865 and 1981). As such, there is a need for more research to guide personnel management practices in this aspect.

Another persistent problem in the public workplace stems from perceptions among employees of unreasonable workloads, which happen when employees’ task demands are too heavy to be dealt with given limited resources (Bowling & Kirkendall, 2012; Wickens, 2008). Put differently, employees tend to perceive their workloads as unreasonable when their resources are insufficient to accomplish the requirements of the tasks they are assigned. Reforms like New Public Management and New Public Governance impose more demands on employees with limited resources, since they require employees to learn new procedures and change their work habits (Audenaert, George, & Decramer, 2019). By focusing on improving public sector efficiency and cutting operational costs, these reforms often demand public employees take on new responsibilities and expanded work roles (Audenaert et al., 2019; Grima, Georgescu, & Prud’Homme, 2020). The change process therefore has increased the complexity and the demands of the work or made workloads increasingly perceived to be unreasonable (Audenaert et al., 2019; Grima et al., 2020), which can negatively affect employee well-being, health, work life quality, job attitudes, and behaviors (Bhui, Dinos, Galant-Miecznikowska, de Jongh, & Stansfeld, 2016; Hsieh, 2014; S. Kim & Wright, 2007; Shim, Park, & Eom, 2017). The general management literature (e.g., Bowling, Alarcon, Bragg, & Hartman, 2015) suggests that employees perceive workload as being reasonable when they possess sufficient resources (physical or psychological) to deal with job demands, suggesting ways to deal with this issue in the public sector. Nevertheless, how to create a more reasonable workload for employees
remains understudied in the public management literature. The dissertation’s second article manuscript, therefore, is motivated to deal with this personnel management issue.

Another persistent theme that demands greater attention is the complexity of the relationships between different levels of management. Public organizations are complex hierarchical systems with different managerial levels; each managerial level has its own tasks to help the organization operate effectively (Dechurch, Hiller, Murase, Doty, & Salas, 2010; Wilson, 1989). For instance, a common organizational design differentiates between three main levels of management, in which top-level management (senior leaders) is in charge of the strategic actions of the organization; middle-level management (managers) sets operational goals and manages to achieve the goals; and low-level management (supervisors) allocates tasks and supervises employees (Dechurch et al., 2010; Jacobs & Mcgee, 2001). Therefore, understanding how different levels of management coordinate and interact with each other in shaping employee attitudes and behaviors is essential for public organizations to have appropriate and holistic strategies to effectively manage their workforces (Dechurch et al., 2010).

This dissertation addresses the above practical but understudied problems contributing knowledge that will help public administrators more effectively manage human resources in the US federal government. Three article manuscripts targeting the above-mentioned issues are included, employing data from the United States Office of Personnel Management’s Federal Employee Viewpoint Survey (FEVS) and Federal Human Capital Survey (FHCS) to contribute to empirical research on personnel management in the federal government. Due to the nature of studying human behaviors, these studies are based on the behavioral public administration approach (Grimmelikhuijsen, Jilke, Olsen, & Tummers, 2017), which is a tradition of research
deeply rooted in the psychology and behavioral sciences and is gaining new prominence in public administration research (Bertelli & Busuioc, 2020; Young, Hassan, & Hatmaker, 2019).

Behavioral public administration encompasses “the interdisciplinary analysis of public administration from the micro-level perspective of individual behavior and attitudes by drawing on recent advances in our understanding of the underlying psychology and behavior of individuals and groups” (Grimmelikhuijsen et al., 2017, p. 46). In other words, “behavioral public administration studies the behavioral microfoundations of public administration through theories developed in psychology and the behavioral sciences” (Grimmelikhuijsen et al., 2017, p. 46). Behavioral public administration is characterized as consisting of three main features (Grimmelikhuijsen et al., 2017). First, the unit of analysis is individuals. More specifically, this approach focuses on studying “citizens, public employees, and elected officials” (Hassan & Wright, 2020, p. 163). Second, this approach investigates “the psychological processes underlying the perceptions, attitudes, and behaviors” of those people (Hassan & Wright, 2020, p. 163). In other words, this approach attempts to explain why people perceive, feel, or behave in certain ways and from this evidence, suggest appropriate management interventions. Lastly, this approach employs psychology and behavioral sciences theories and methods to study public administration relevant phenomena (Grimmelikhuijsen et al., 2017). As such, it paves the way for more theoretical and methodological integration between public administration and psychology (Hassan & Wright, 2020).

Behavioral public administration is vital for the development of scholarly research in public administration (Grimmelikhuijsen et al., 2017). Simon (1947) argued that, “for the man who wishes to explore the pure science of administration, it will dictate at least a thorough grounding in social psychology” (p. 202). As a social science field, public administration can
both benefits theoretically and practically by this approach since it helps to bring insights from psychology theories and methods to investigate public administration phenomena and guide practice (Grimmelikhuijsen et al., 2017). Furthermore, this approach is useful since it can help “confirm, add nuance to, or extend classical public administration theories” (Grimmelikhuijsen et al., 2017, p. 45). Some scholars are critical of this approach as it may ignore important meso and macro factors like institutions and structures that have significant influence on the public system (Hassan & Wright, 2020). Nevertheless, the behavioral public administration approach is one strategy of a diverse array of research strategies that together promote a fuller, more holistic understanding of public administration.

This dissertation contributes to efforts to promote the behavioral public administration approach in scholarly research. More specifically, it investigates how HRM influences federal employees’ attitudes and behaviors based on psychology and behavioral sciences theories and methods that are relevant to the public sector context. Three major theories, including conservation of resources (COR) (Hobfoll, 1988; Hobfoll, Halbesleben, Neveu, & Westman, 2018), job demands-resources (JD-R) (Bakker & Demerouti, 2008), and generational theory (Dencker, Joshi, & Martocchio, 2008), are used to study public sector employees, their attitudinal and behavioral issues, and suggest relevant practical implications for HRM. Adopting the lens of behavioral public administration to contemporary public sector problems, this dissertation involves three empirical studies presented sequentially in more detail in Chapters 2, 3, and 4. A summary of these studies are as follows:

The first study presented in Chapter 2, “Are Millennials different? A time-lag study comparing federal Millennial and Generation X employees’ affective commitment,” looks at the generational difference issue and its implications for theories and practices. This study is based
on generational theory, which theorizes generations as an important factor that can impact employee attitudes and behaviors (Dencker et al., 2008). Dencker et al. (2008) argue that there are workplace generational identities, which result from the shared experiences of events of each generation in formative years. Such shared identities can lead to similar expectations at work of people from the same generations (Dencker et al., 2008) or similar psychological contracts. A psychological contract is “an employee’s beliefs about the reciprocal obligations between that employee and his or her organization, where these obligations are based on perceived promises and not necessarily recognized by agents of the organization” (Morrison & Robinson, 1997, p. 229). In other words, psychological contracts elucidate what employees expect their employers to offer them, and what they need to give their employer in return. This reciprocal relationship also implies that if employees cannot get what they expect from their employers, they may reduce their commitment at work or even quit their job (Bal, Chiaburu, & Jansen, 2010; Conway & Briner, 2005). If members of each generation value things differently, according to this theory, similar work experiences may affect each generational cohort differently.

Drawing on generational theory (Dencker et al., 2008), this study hypothesizes and tests the differences between the two generations—Millennials and Generation X—in their affective commitment or their emotional bonds with the organizations (Meyer, Stanley, Herscovitch, & Topolnytsky, 2002, p. 21). It also examines how their affective commitment relates to certain work experiences, including support for work-life balance, financial rewards, and meaningful work. Since Millennials and Generation Xers will be the two largest generation groups in the workforce in coming years, studying their attitudes can make meaningful contributions to practice. Employee affective commitment is the attitudinal focus of this study since it can foster important workplace behaviors and outcomes, such as proactive work behavior (Luu, 2018),
innovative behavior (Brimhall, 2021), and work quality and performance (Park & Rainey, 2007). It is especially important to study affective commitment of Millennials in comparison with prior generations since they are commonly reported in the public management literature to have very high turnover intentions (Ertas, 2015; McGinnisers Johnson & Ng, 2016), yet prior works have not examined generational differences in affective commitment and how to meaningfully retain them in the public workplace.

A time-lag design is employed using data from the 2011 FEVS and 2004 FHCS to examine US federal Millennials and Generation Xers under 30 years old in the two years while controlling for age effect. The analysis finds no evidence for the substantial differences between Millennials and Generation Xers at a similar stage of their careers in terms of commitment levels as well as how job experiences influence their attitudes. Additionally, young federal employees belonging to the Millennial generation reported work interests differing from the common stereotypes. This study advances public management scholarship regarding generations. It also contributes to the general psychology literature by pointing to possible refinements for generational theory as it applies in the public sector. Practically, the findings help reduce erroneous stereotypes and foster effective and equitable management of the public workforce. This study will be of interest to readers of general public management journals such as Review of Public Personnel Administration, Public Management Review, or Administration & Society.

The second study presented in Chapter 3, “Creating reasonable workload to enhance public employees’ job satisfaction: The role of supervisor support, co-worker support, and job resources,” addresses the issue of high workloads in the context of increasing public demands. This paper is primarily based on COR theory (Hobfoll, 1988, 2002) to propose its theoretical model. COR (Hobfoll, 1988, 2002) is a prominent theory explaining the relationship between
resources and human stress and well-being, which has been used widely in the general management studies (Roberson, 2019) as well as in public management research (Luu et al., 2020; Nguyen, Teo, & Dinh, 2020). Resources in this theory are defined as what are valued by people or serve as means to achieve other resources, such as skills, assets, and time (Hobfoll, 2002). According to COR, since resources are valued, people make every effort to acquire and conserve resources. By contrast losing resources or facing the risk of losing resources can negatively influence human well-being (Hobfoll, 2002). The more resources people possess, the more likely they are to invest and thus gain more resources (gain spirals) and develop higher well-being. In contrast, those who have fewer resources face more stress and are more likely to lose resources (loss spirals) (Hobfoll, 2002; ten Brummelhuis & Bakker, 2012). Furthermore, COR theory proposes that resources in the same environment can nurture and influence each other to creating resource caravans that travel together (Hobfoll, 2002; Hobfoll et al., 2018).

Based on COR, the second study proposes that supervisor support can help employees feel their workload as being more reasonable and thus enhance employees’ job satisfaction. In addition, this paper posits coworker support and tangible job resources as mediating and moderating factors in how supervisor support helps employees perceive their workload as more reasonable. Data from the 2019 US Federal Employee Viewpoint Survey was analyzed via structural equation modelling method to test the hypothesized model. The results from these analyses provide support for all the hypotheses. The research findings contribute to the extant public management knowledge by identifying a two-phase mediation mechanism to further explain how supervisor support promotes job satisfaction as well as a contingency approach to this relationship. It also contributes to the COR, and the general literature regarding supervisor support, coworker support, workload, and tangible job resources. Furthermore, this study
suggests appropriate practical strategies about how to enhance employees’ perceptions of their workload and job satisfaction in the public workplace. This study will be relevant to readers of general public management journals such as Review of Public Personnel Administration, Public Management Review, or Administration & Society.

The third study presented in Chapter 4, “Trust in multi-level managers and employee extra-role behavior in the US federal government: The role of psychological well-being and workload,” looks at the issue of trust in different levels of management, its connection, and their effects on employees. This study draws on two prominent psychological theories to examine public employees’ attitudes and behaviors. The first is trickle effects models (Wo, Schminke, & Ambrose, 2019), which describe the “indirect social influence of Party A on Party C via Party B (Party A → Party B → Party C)” (Wo et al., 2019, p. 4). Put differently, trickle effects models study the indirect effects of two parties through a mediating actor rather than the direct effects between them. As such, in the trickle effects model, individuals can have an effect on each other even if they have no social contact. Trickle-down and trickle-up effects are the most common trickle-effects studied in the literature. In the trickle-down effects, “perceptions, feelings, attitudes, and behaviors” transfer down from higher positions in organizations to lower levels (Wo et al., 2019, p. 2). Meanwhile, in the trickle-up effects, “the perceptions, feelings, attitudes, and behaviors” transfer up the organizational hierarchy (Wo et al., 2019, p. 2). Although trickle-effects models have been used quite extensively in the general management literature (e.g., De Cremer, van Dijke, Schminke, De Schutter, & Stouten, 2018; Fulmer & Ostroff, 2017), the reach of these ideas is still limited in the public sector research. Given the common nature of the workplace hierarchy, this is an important and relevant theory that will bring new insights into the
personnel management process in the public sector context. The third study of this dissertation will adopt this framework to study trust in multi-level managers in the US federal government.

The second predominant theoretical framework of the third study is JD-R model (Bakker & Demerouti, 2008, 2017). The primary function of this model is to examine the roles of job resources and job demands on employees’ wellbeing and performance (Bakker & Demerouti, 2017). Job resources are any things at the workplace that can help foster personal development, finish work goals, and reduce job demands (Demerouti, Nachreiner, Bakker, & Schaufeli, 2001). Meanwhile, job demands are things that require employees to spend physical or mental effort at work (Demerouti et al., 2001). According to the JD-R model, job resources can motivate employees to have better well-being and performance (Bakker & Demerouti, 2017). Conversely, job demands can negatively influence human well-being and performance (Bakker & Demerouti, 2017). Furthermore, the JD-R model also proposes that job resources and job demands can interact to influence employees (Bakker & Demerouti, 2017), with job resources having higher influence on employee well-being and performance when they face high job demands. This may be because job resources have a higher need when employees have high levels of workload (Bakker & Demerouti, 2017). JD-R models are a prominent psychology model that has increasingly been used in public administration to study employees’ attitudes and behaviors (Bauwens, Decramer, & Audenaert, 2019; Borst, Kruyen, & Lako, 2019).

Building on the trickle effects literature, this study proposes that employee trust in senior leaders fosters their trust in direct supervisors and vice versa. Also, drawing on the JD-R model, this study argues that trust in senior leaders and in direct supervisors affects employee extra-role behavior through fostering psychological well-being. Moreover, as senior leaders and direct supervisors play different roles, this paper predicts that workload moderates, in different
manners, the above indirect relationships. This study uses a latent moderated structural model with data from the 2019 FEVS to test the hypotheses. The findings support the hypothesized model. This study brings new evidence and practical implications about the connection and impact of different management levels on employee behaviors. I am the lead author of this co-authored manuscript, who has been tasked of creating research ideas and models, preparing and analyzing data, and writing the main arguments and contributions. This manuscript has been recently published in Review of Public Personnel Administration.

Finally, Chapter 5 provides the dissertation’s Conclusion. This chapter concludes this dissertation by providing a summary of the main findings of the three studies conducted. In addition, it elaborates the contributions of this dissertation to the literature – both public administration in particular and psychology research in general. The practical implications of this dissertation are also discussed to help effectively design personnel management strategies in the contemporary context.

Chapter 5 acknowledges several important limitations in data and methods employed in this dissertation and suggests several ways future research can improve on the research presented here. First, the studies in this dissertation could not make causal inferences since they used cross-sectional data to test their hypothesized models. Second, there may be the common method variance (CMV) issue, as this study only uses self-reported data from employees. This can distort (either inflate or deflated) the estimations in the studies conducted (Jakobsen & Jensen, 2015). Third, the independent and dependent variables are subject to measurement errors, as the three studies in this dissertation use items from the FEVS and/or FHCS surveys for measuring variables. Specifically, in the third study of this dissertation presented in Chapter 4, extra-role behavior is measured by reported scores of employees’ surveys, thereby reflecting reported
and/or intended behaviors (i.e., intention and/or willingness) rather than actual behaviors of employees. Another limitation of this dissertation’s measurement is that several single-item measures were used in the three studies due to using secondary data from FEVS and/or FHCS surveys with inherent limitations. Fourth, the studies in Chapters 3 and 4 do not include control variables to account for alternative explanations due to structural equation models (SEM) model identification issues. As such, alternative explanations were excluded in those studies when the hypothesized models were tested. While the absence of control variables may create important limitations, the SEM approach nonetheless has other advantages and appropriate for the purposes of those studies. Lastly, moderating effect sizes in the studies in Chapters 3 and 4, although statistically significant, are relatively small. As such, the theoretical and practical implication values regarding moderating effects in these studies may be limited. Nevertheless, this dissertation is intended to contribute to community of scholarly research using different methods and theories to explore employees’ attitudes and behaviors, complementing other approaches offering richer detail and tracing causal processes.

In sum, the three empirical studies in this dissertation capture current practical issues in HRM in the public sector that merit further investigation. These include whether generational differences are a factor that HRM needs to account for; how to enhance employees’ perceptions of workload and job satisfaction; and how different levels of management connect to affect employees. Together, these studies help deal with the complexity of personnel management in the federal government. Results of the three papers expand our knowledge of how HRM affects employees’ positive attitudes and behaviors and suggest appropriate HRM practices to effectively foster employee positive attitudes and behaviors given new contextual challenges. This dissertation, from the lens of behavioral public administration theories (Grimmelikhuijsen et
al., 2017), meaningfully enriches public administration literature in particular, and the behavioral sciences literature in general.
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Chapter 2. Are Millennials different? A time-lag study of federal Millennial and Generation X employees’ affective commitment

Abstract

Stereotypes about Millennials permeate conversations about public management, often without evidence. Building on generational theory, this study hypothesizes and compares affective commitment levels of Millennials and Generation Xers working in the US federal government. In addition, it examines how their affective commitment relates to certain work experiences, including support for work-life balance, financial rewards, and meaningful work. Using a time-lag design with data from the US Federal Viewpoint Survey 2011 and 2004, this study untangles the generational difference effect while controlling for age difference. The results find no substantial differences between the two generations at a similar stage of their careers. Additionally, young federal employees belonging to the Millennial generation reported work interests differing from the common stereotypes. This study advances public management scholarship regarding generations and suggests possible refinements for generational theory as it applies in the public sector. Practically, the findings help reduce erroneous stereotypes and foster effective and equitable management of the public workforce.
Introduction

The work-related attitudes of Millennials have received extensive coverage in the mass media as well as in academic journals. For instance, the meta-analysis of 20 studies of Costanza, Badger, Fraser, Severt, and Gade (2012) finds that Millennials are more likely to report an intention to quit their jobs than prior generations. Lyons and Kuron (2014)’s literature review of contemporary studies shows that Millennials are often portrayed as narcissistic and materialistic. As such, many scholars suggest special personnel management strategies to accommodate the distinctiveness of members of this generation to attract and retain them (Anderson, Baur, Griffith, & Buckley, 2017; Ebeling, Dent, & Kempenich, 2020). In the public sector, despite little empirical work to back this up, public managers may hear a lot about the need to adjust their working environment to accommodate the distinctive needs of Millennials (e.g., Hamidullah, 2015; Owen, 2020). Tailoring management practices to generational stereotypes without reliable evidence is costly (Costanza & Finkelstein, 2015; Lyons & Kuron, 2014), therefore scholarly research providing evidence on generational differences in the public workplace is essential to help public managers navigate their changing workforces.

Examining generational differences is challenging, since “the relationship between age, period, and generation makes isolating the effect of a single variable, such as generation, difficult” (Kowske, Rasch, & Wiley, 2010, p. 268). Kowske, Rasch, and Wiley (2010) argue that one way to separate generational effects is to “use a hierarchical age-period-cohort (HAPC) model using repeated cross-sectional individual level data” (p.268). However, this type of research is rarely undertaken since it requires multiple years of repeated cross-sectional individual level data. Most research in public management and general management studies generations at one time point. Some study one generation without comparing it with other
generations to see whether they are distinct (AbouAssi, McGinnis Johnson, & Holt, 2019; Breitsohl & Ruhle, 2016; Curtin, Ph, Gallicano, & Matthews, 2011; Henstra & Mcgowan, 2016; McGinnis Johnson & Ng, 2016). For instance, AbouAssi et al. (2019) investigate job mobility of Millennials and found that Millennials switch jobs more frequently within rather than across sectors. This study offers understanding about Millennial behaviors, without knowing whether they differ from other generations. Others, such as Ertas (2015), use the 2011 FEVS to compare Millennials and older worker employees at one time. One inherent limitation of this type of study is that they cannot separate generational effect from chronological age effect, which is a significant factor influencing employee attitudes and behaviors (Lyons & Kuron, 2014; Twenge, 2010). A time-lag study, analyzing employees in the same age group at different time periods (Lyons & Kuron, 2014; Twenge, 2010), offers an alternative strategy. This approach produces findings that control for age effect while isolating generational effects and period effects or changes in society and the economy over time that affect people. The time-lag design offers “distinct advantages for isolating generational differences,” since “time period effects are often the weakest of the three, as attitudes are often formed early and retained” (Twenge, 2010, p. 202).

This study employs a time-lag design using data from the 2011 and 2004 Federal Employee Viewpoint Survey (FEVS) to examine US federal Millennials and Generation Xers under 30 years old in the two points in time. It compares the two generations in one of the most important work attitudes: affective commitment, which is the employee’s “emotional attachment to, identification with, and involvement in the organization” (Meyer, Stanley, Herscovitch, & Topolnytsky, 2002, p. 21). It also examines how work experiences influence this attitude among members of two generations. Millennials and Generation Xers will be the two largest generation
groups in the workforce in coming years, providing meaningful and relevant contributions to practice.

Employee affective commitment can foster important workplace behaviors and outcomes, such as proactive work behavior (Luu, 2018), innovative behavior (Brimhall, 2021), and work quality and performance (Park & Rainey, 2007). Additionally, learning how to effectively enhance affective commitment of employees from different generations may even benefit organizations than learning how to preventing turnover (Park & Rainey, 2007). This is because employees who stay with an organization due to enjoying their job (i.e., affective commitment) will have better work attitudes and make greater contributions compared to those who stay due to the feeling of obligation (i.e., normative commitment) or the fear of high costs of leaving an organization (i.e., continuance commitment) (Park & Rainey, 2007). It is especially important to study affective commitment of Millennials in comparison with prior generations since they are commonly reported in the public management literature to report higher turnover intentions (Ertas, 2015; McGinnisers Johnson & Ng, 2016), yet prior research have neither confirmed they are less affectively committed to their job nor suggested how to meaningfully retain them in the public workplace.

This study advances the literature in four major aspects. First, it contributes to public management scholarship on generations by comparing affective commitment of federal Millennials and Generation Xers in the same age group (under 30) to control for age effect. Such an understanding is important for designing a managerial agenda to foster employee affective commitment in the changing workforce. In doing so, this study also makes a second contribution by providing evidence about important job experience factors for young employees (under 30) to meaningfully stay with and contribute to their organizations’ success. Third, this study
contributes to generational theory by providing generational evidence in an under-explored environment—the public sector—and suggesting possible refinements. Lastly, it advances the public management research methods by using the time-lag design from large-N working employee survey, responding to the call for “greater method rigor” in generational research (Lyons & Kuron, 2014) to provide more reliable results to help advance theories and practices.

This paper is structured as follows: the next section reviews the related literature and develops hypotheses about generational differences in the US federal workplace. After that is the research method section where data sources, variable measurement, and analysis strategy are presented. Following this is the results section where evidence is shown to support the hypotheses. The last section is the discussion, which involves theoretical and practical implications, limitations, and future research directions.

**Literature Review and Hypothesis Development**

**Generation theories**

A generation is represented as a cohort that experiences similar historical events at similar ages, shares important life experiences, and thus may have similar attitudes and values in work and life (Eyerman & Turner, 1998; Gillear, 2004; Ryder, 1965). Twenge et al. (2010) argue that “each generation is influenced by broad forces (i.e., parents, peers, media, critical economic and social events, and popular culture) that create common value systems distinguishing them from people who grew up at different times” (p.1120). For example, recent generations in industrialized economies are often seen as having higher expectations for pay and leisure activities but being less committed to work (Lyons & Kuron, 2014). These distinctions are argued to create distinctive identities for each generation (Egri & Ralston, 2004; Hung, Gu, & Yim, 2007).
Management scholars commonly measure a generation as a group of people who were born in the same time period (demographic cohort) and focus on examining how birth cohorts differ from each other (Lyons & Kuron, 2014). This approach is argued to be advantageous since it brings “empirical precision to the ambiguous construct of generation” (Lyon & Kuron, 2014, p. S141). Members of today’s workforce are typically categorized into four generations. Twenge et al. (2010) defines Baby Boomers to include employees born between 1946 and 1964 and are generally the oldest members of the workforce. Generation X includes those born between 1965 and 1981. Millennials were born between 1982 and 1999; many of the youngest members of this generation have not entered the workforce yet (Twenge et al., 2010). Very few members of Generation Z, born on or after 2000, have joined the workforce and data about this generation in the workplace is very limited. This study examines differences in work values and attitudes of two generational cohorts of federal employees: Millennials and Generation X.

In the workplace, generations are theorized as an important factor that can impact employee attitudes and behaviors. Dencker, Joshi, and Martocchio (2008) argue that there are workplace generational identities, which result from the shared experiences of events of each generation in formative years (Dencker et al., 2008). Such shared identities can lead to similar expectations at work of people from the same generations (Dencker et al., 2008) or similar psychological contracts. A psychological contract is “an employee’s beliefs about the reciprocal obligations between that employee and his or her organization, where these obligations are based on perceived promises and not necessarily recognized by agents of the organization” (Morrison & Robinson, 1997, p. 229). In other words, psychological contracts elucidate what employees expect their employers to offer them, and what they need to give their employer in return. This reciprocal relationship also indicates that if employees cannot get what they expect from their
employers, they may reduce their commitment at work or even quit their job (Bal, Chiaburu, & Jansen, 2010; Conway & Briner, 2005). Since generational members are characterized distinctively in what they value at work, according to this theory, similar work experiences may affect each generational cohort differently.

**Millennials and Generation Xers**

Millennials are defined as those born between 1982 and 1999 (Twenge et al., 2010). They made up about 35% of the US workforce in 2017 (Fry, 2018). Millennials grew up at times of economic prosperity (Ng & Johnson, 2015; Solnet & Hood, 2008), rapid advancement of information technology, and widespread use of social media (J. Park & Gursoy, 2012; Wiedmer, 2015). The terrorist attacks on September 11th, 2001 are a significant event that has been argued to have shaped how Millennials view life (Ng, Schweitzer, & Lyons, 2010). Millennials are often portrayed as products of middle class and “helicopter” parents (Bracy, Bevill, & Roach, 2010; Pînzaru et al., 2016), who were overly protect their children (Odenweller, Booth-Butterfield, & Weber, 2014). As a consequence, Millennials are seen in stereotypes as narcissistic, believing that they are special and deserving (Twenge, Konrath, Foster, Campbell, & Bushman, 2008a, 2008b). Narcissism here is a subclinical type that is less extreme than clinical ones, and healthy people may possess this in some degrees (Bergman, Fearrington, Davenport, & Bergman, 2011, p. 706). A review of Lyons and Kuron (2014) finds that research generally suggests that Millennials demonstrate greater extroversion and more awareness of a bigger world, differences often attributed in part to the advancement of information technology. Furthermore, this review also shows that many scholars argue this generation places priority on leisure activities over jobs, but they also have higher expectations at work. This generation is also commonly depicted as
“Generation Me” who is more self-centered and higher in self-esteem (Twenge, 2008, 2014) than prior generations.

Generation Xers were born between 1965 and 1981 (Twenge, Campbell, Hoffman, & Lance, 2010) and accounted for around 33% in the US labor force in 2017 (Fry, 2018). Generation Xers are often depicted as having grown up at times of economic downturn and facing greater financial difficulties than Millennials (Beutell & Wittig-Berman, 2008; Eisner, 2005). Generation Xers are commonly portrayed as having lacked parental care and supervision with both parents “in the workforce” and/or are “divorced” (Lissitsa & Kol, 2016, p. 305). In addition, common perception holds that the period in which Generation X grew up (1960s - 1970s) was dominated by an ethos of individualism, which is also argued to influence this generation’s personalities (Benson & Brown, 2011). Regarding experience with technology, Stich (2017) argues that “when people in this generation were children, they grew up experiencing both ways of life—one before, and one after technology” (p. 32). Compared to generations immediately before them, Benson and Brown (2011) claim that Generation Xers are “generally more technologically savvy.” Some scholars (e.g., Greenwood, Murphy, & Gibson, 2010; Gursoy, Maier, & Chi, 2008) maintain that the main characteristics of Generation X are individualism and self-reliance; they are more willing “to go it alone.” Similarly, Bristow, Amyx, Castleberry, and Cochran (2011) argue that Generation X often value work-life balance since many lacked parental care during their youth.

Despite their prominence in management discourse, many scholars argue that such generational differences are rooted in stereotypes rather than empirical fact (e.g., Becton et al., 2014; Costanza & Finkelstein, 2015). This is because most claims are anecdotal with very little evidence about how historical events can shape generational distinctiveness (Becton et al., 2014).
In addition, shared historical events and life experiences may vary greatly among generational members depending on their locations and social status (Becton et al., 2014). As such, generational distinctiveness based on the commonly claimed events may not hold for all birth cohort members who live in different locations and may have disparate life experiences. Furthermore, evidence for the distinctive values and characteristics of each generation is fragmented, unreliable, and inconsistent since research cannot differentiate generational effect from age and period effects (Becton et al., 2014; Costanza & Finkelstein, 2015). Therefore, it is vital to have more empirical research to clarify generational issues in different contexts (Lyons & Kuron, 2014).

**Work experiences, generations, and affective commitment**

Social exchange theory (Blau, 1964) and the norm of reciprocity (Gouldner, 1960), which postulate that people reciprocate when they perceive to be in beneficial relationships, may explain why some employees exhibit higher levels of affective commitment. Accordingly, employees are affectively committed to their employers to reciprocate employers’ beneficial treatments such as providing material and social rewards for their work and effort (Eisenberger, Fasolo, & Davis-LaMastro, 1990). Rewards energize and direct the behavior of people; thus, rewards can motivate employees to spend more time and energy on their organizations or enhance employee affective commitment (Richard T. Mowday, Steers, & Porter, 1979).

Drawing from the generational theory (Dencker et al., 2008) and some existing evidence, the following sections hypothesize how Millennials might differ from Generation Xers in the levels of affective commitment and how work experiences impact their affective commitment. The general as well as public management literature has provided evidence about how certain work experiences influence employee affective commitment, such as support for work-life
balance, meaningful work, financial rewards, social support, opportunities for development, and fairness (French & Emerson, 2015; Kim & Lee, 2020; Luu, 2018; Mercurio, 2015; Meyer & Allen, 1998; Tummers & Knies, 2013). This study focuses on three major factors that hypothesized to affect Millennials differently based on their distinctive characteristics: support for work life balance, financial rewards, and meaningful jobs.

**Levels of affective commitment**

The general management research typically supports that workers in younger generations are less committed to their employers (Brunetto, Farr-Wharton, & Shacklock, 2012; Costanza, Badger, Fraser, Severt, & Gade, 2012; Glazer, Mahoney, & Randall, 2019; Lub, Nije Bijvank, Matthijs Bal, Blomme, & Schalk, 2012; Lyons & Kuron, 2014). As such, it is plausible to expect that Millennials in the public workplace would share the same characteristics—to have lower levels of affective commitment—compared to Generation Xers.

Several possible explanations may account for this trend. Millennials are generally reported to have lower work centrality and higher leisure values (Lyons & Kuron, 2014; Twenge et al., 2010; Wray-Lake, Syvertsen, Bridell, Osgood, & Flanagan, 2011). Work centrality refers to the importance of work in people’s lives (Bagger & Li, 2012; Hirschfeld & Feild, 2000). People who are high in work centrality see work as a central part of their lives; thus, they engage and commit to their work (Matthijs Bal & Kooij, 2011). In contrast, people who have lower work centrality (like many Millennials) tend to place more value on things outside of work, and thereby are less committed to their work.

In addition, previous studies have shown that Millennials have significant “intention to quit a job,” even the highest among those in the workforce. McGinnis Johnson & Ng (2016)
found that two-thirds of the Millennial respondents in the 2011 Young Nonprofit Professionals Network Survey indicated sector-switching intentions. Additionally, Ertas (2015), using the 2011 Federal Employee Viewpoint Survey, found that Millennials working in federal agencies are more likely to report that they intend to leave their organizations than are employees of previous generations. Lyons, Ng, and Schweitzer (2012) also found that Canadian Millennials report higher numbers of job changes per year than those in prior generations. Since affective commitment is correlated with turnover (Albrecht & Travaglione, 2003; Meyer et al., 2002), it can be inferred that Millennials have lower levels of affective commitment in the workplace.

**Hypothesis 1.** Millennials working in federal government agencies will report lower levels of affective commitment compared with Generation Xers.

**Support for work-life balance and affective commitment**

When work experiences are consistent with expectations and satisfy needs, employees are more affectively committed to their organizations (Meyer, Allen, & Smith, 1993). Support for work-life balance can enhance employees’ affective commitment (Caillier, 2013; S. Y. Kim & Lee, 2020) since it can satisfy the needs to balance work, family, and other life issues (Caillier, 2013; Parkes & Langford, 2008). Employees, as such, will reciprocate the support given for work-life balance from their organizations by being more committed to their organizations (Kim & Lee, 2020).

As already mentioned, previous studies in the general management literature commonly suggest that Millennials are characterized by exhibiting lower work centrality, placing more value on leisure activities, and expressing greater expectations for work-life balance support (Bresman, 2015; Buzza, 2017; Lyons & Kuron, 2014; Lyons et al., 2012; Ng et al., 2010;
Among workplace generations, Millennials are often depicted as placing greater importance on work-life balance support (Ng et al., 2010; Twenge & Kasser, 2013). Millennials are characterized as tending to value a job that provides a more flexible work schedule and more vacation time than older generation employees do (Twenge et al., 2010).

It is commonly argued these distinctive characteristics of Millennials may be due to having come of age exposed to more advanced information technologies. Thus, they are more likely to think that they can work at any place and with flexible work schedules (Wiedmer, 2015). Some other scholars argue that prominent historical events that happened as they grew up such as the terrorist attacks on September 11, 2001 also strongly influence what they value in life (Ng et al., 2010). Since Millennials value work-life balance more than employees from previous generations, it is plausible that federal Millennials will give higher values to employer support for work-life balance.

**Hypothesis 2.** Support for work-life balance will be associated more strongly with affective commitment among Millennials than among Generation Xers in US federal agencies.

**Financial rewards and affective commitment.**

Financial rewards are an important factor that can influence public employee affective commitment (French & Emerson, 2015; Miao, Newman, Schwarz, & Xu, 2014), as they satisfy not only employees’ basic needs but also their social and esteem needs (French & Emerson, 2015; Kuvaas, 2006; Vandenbarghe & Tremblay, 2008). Millennials are generally reported as having very high expectations about pay in the workplace (Ng & Johnson, 2015; Ng et al., 2010).
Additionally, compared to other generations, the importance of material rewards appears to be higher among Millennial employees (Krahn & Galambos, 2014; Lub, Bal, Blomme, & Schalk, 2016; Lyons & Kuron, 2014).

This is possibly due to Millennials’ greater sense of narcissism (Twenge et al., 2010), implying that they may have higher expectation for financial rewards than previous generations to appease their narcissistic traits. Social context may also be involved. Millennials have faced increasing costs of education and more requirements for advanced degrees in finding jobs (Levenson, 2010). As such, they have greater pressure to earn more money, and financial rewards may often be a factor that can affect their attitudes strongly. Lastly, Millennials have grown up in the era of social media where people can easily show their possessions on social networks. Thus, financial rewards may become more important for Millennials than for members of the prior generation. Since Millennials have high expectations for financial rewards, they may be more likely to respond with higher affective commitment if they are satisfied with their pay.

**Hypothesis 3.** Satisfaction with financial rewards will be associated more strongly with affective commitment among Millennials than among Generation Xers in US federal agencies.

*Meaningful work and affective commitment.*

Meaningful work can be seen “not as simply whatever work means to people (meaning), but as work that is both significant and positive in valence (meaningfulness)” (Steger, Dik, & Duffy, 2012, p. 323). In other words, meaningful work refers to employees’ perceptions about the value and importance of their work. Meaningful work enhances individuals’ feeling of competence, growth, belongingness, and purposefulness (Kahn, 1990; Mostafa & Abed El-
Motalib, 2020); thus, it can enhance employee affective commitment (Jiang & Johnson, 2018; Steger et al., 2012; Tummers & Knies, 2013).

Previous studies commonly suggest Millennials value work that is meaningful (Ng et al., 2010). Millennials are depicted as often looking at values and missions of organizations and being more willing to work for ones that contribute to the general welfare of the society rather than just seeking profits (Lyons & Kuron, 2014; Ng & Gossett, 2013; Ng et al., 2010). Since non-profit and government employers can satisfy these needs, Ng and Gossett (2013) found that Canadian Millennials wanted to work for the Government the most. In short, prior work generally suggests Millennials are seeking meaningfulness in their work (Lyons & Kuron, 2014).

There are several possible explanations for this. Twenge (2009) argues that the most important feature of Millennials is their “narcissism.” Since narcissists have inflated views of their own abilities, this implies that they believe in their own importance and capacity and want to work in jobs that can make them feel they are important. In addition, growing up in an era of information technology, Millennials are more connected to others and more socially conscious of the larger world (Twenge et al., 2010). Therefore, doing an important job for society is an important factor that they expect in their work. Since Millennials have higher expectations for meaningful work, one also expects that meaningful work will have more influence on Millennials' affective commitment than Generation Xers.

Another possible explanation for such a pattern is that, as Millennials have lower work centrality than previous generations (Twenge et al., 2010; Wray-Lake et al., 2011), meaningful work may affect their affective commitment stronger than that of generation Xers. Jiang and Johnson (2018) suggest that how the nature of work affects employee affective commitment
depends on the level of employee work centrality. Specifically, meaningful and important work influences employee affective commitment more strongly for employees who place less importance on work (low work centrality). This can be explained by the fact that employees who view work as peripheral may perceive the meaningful nature of the work as more motivating.

**Hypothesis 4.** Meaningful work will be associated more strongly with affective commitment among Millennials than among Generation Xers in US federal agencies.

**Method**

**Data**

This study adopts the time-lag design (Lyons & Kuron, 2014; Twenge, 2010) using data from the 2011 Federal Employee Viewpoint Survey (FEVS) and 2004 Federal Human Capital Survey (FHCS). The time-lag design, analyzing people at the same age group at different periods, is advantageous over an approach that uses data collected at one time point because it isolates age and generational differences (Lyons & Kuron, 2014; Twenge, 2010). 2011 FEVS and 2004 FHCS were used to test the hypotheses as groups of employees under 30 years old in the two surveys match the cohort years of generations. More specifically, as Millennials were born between 1982 and 1999 (Ertas, 2015; Twenge, Campbell, & Freeman, 2012), the group of employees under 30 years old in FEVS 2011 can be assigned as Millennials. Generation X was born between 1965 and 1981 (Ertas, 2015; Twenge et al., 2012) and thus, employees under 30 years old group in 2004 can be assigned as Generation Xers.

FEVS (formerly named FHCS) measures federal employee perceptions of their agencies, their managers, and their work experiences. FHCS/FEVS was conducted every other year from 2002 to 2008, then annually from 2010 to 2020. The 2011 FEVS was conducted in April and
May 2011; 540,727 employees in 83 federal agencies were invited to answer the survey with a response rate of 49.3% (266,376 employees answered). FHCS 2004 was conducted from August-December 2004; 276,000 employees from 73 agencies were invited to answer the survey with 53.6% response rate (147,914 employees answered). This study based on the age groups to choose the subsets of employees under 30 years old in the two surveys. The 2011 FEVS contains 13,626 employees under 30 years old while 2004 FHCS involves 1,105 employees under 30 years old. Using listwise deletion, the final sample has 11,351 observations in total, including 10,700 Millennials and 651 Generation X employees¹.

Variables

The dependent variable is Affective Commitment, which refers to employee emotional attachment to an organization. In this study, affective commitment was measured by using a three-item scale, including “I like the kind of work I do,” “My work gives me a feeling of personal accomplishment,” and “I recommend my organization a good place to work.”

Four main independent variables are included. The first is Support for Work-Life Balance, which captures the degree to which the employees feel they have support for their work-life balance needs. It was measured using a single survey item: “My supervisor supports my need to balance work and other life issues.”

The second independent variable is Satisfaction with Financial Rewards, which measures the degree to which employees are satisfied with their pay by using one item: “Considering everything, how satisfied are you with your pay?”

The third independent variable is Meaningful Work, which measures the degree to which employees feel their work is important and meaningful. To construct this measure, a two-item
scale is used, combining “The work I do is important,” and “I know how my work relates to the agency’s goals and priorities.”

The fourth independent variable was *Generation*, measuring whether the respondent is a Millennial or a Generation Xer, in both cases under the age of 30. The group of employees under 30 years old in FEVS 2011 was coded as Millennials (1) and the group of employees under 30 years old in FEVS 2004 was coded as Generation Xers (0).

Control variables include Social Support, Opportunities for Development, Fairness, and demographic variables. The first control variable is *Social Support* since it is strongly associated with affective commitment (El Akremi, Colaianni, Portoghese, Galletta, & Battistelli, 2014; Gupta, Agarwal, & Khatri, 2016; Meyer et al., 2002). Social support captures the degree to which the employees receive help and assistance in the workplace (Karasek & Theorel, 1990). It was measured by using a one-item scale: “Employees in my work unit share job knowledge with each other.”

The second control variable is *Opportunities for Development* which have been shown to enhance employee affective commitment (e.g., Luu, 2018). This variable refers to how employees perceive the skills and competences development opportunities offered by their employer (Holman & Wall, 2002). It was measured by using a 2-item scale, including “I am given a real opportunity to improve my skills in my organization,” and “Supervisors/team leaders in my work unit support employee development.”

The third control variable is *Fairness* which has been shown to significantly impact employee affective commitment as employees prefer to work in the organizations that treat them fairly (Li, Castaño, & Li, 2018; Perreira, Berta, & Herbert, 2018). Fairness refers to employees’ perception about whether the rewards are fair to the efforts they devoted to work (Mowday,
This variable was measured with a 2-item scale, including “Promotions in my work unit are based on merit,” and “Awards in my work unit depend on how well employees perform their jobs.”

Demographic variables, comprising race, sex, supervisory status, and tenure, were also included as control variables in the models.

Except for Generation variable, all items in the variables were measured using a 5-point Likert-type scale (1 = strongly disagree, 5 = strongly agree). For the variables measured by more than one item, their scale scores were created by taking the mean scores of all items.

**Model of interest**

\[
\text{Affective commitment} = \beta_0 + \beta_1 \text{Work Life Balance} + \beta_2 \text{Financial Reward} + \beta_3 \text{Meaningful work} + \beta_4 \text{Generation} + \beta_5 (\text{Work Life Balance} \times \text{Generation}) + \beta_6 (\text{Financial Reward} \times \text{Generation}) + \beta_7 (\text{Meaningful work} \times \text{Generation}) + X_i + \varepsilon
\]

*In which: \( \beta_0 \) is the intercept, \( \beta_0 - \beta_7 \) are the coefficients of the interest variables, \( X_i \) are control variables, and \( \varepsilon \) is the error term.*

**Analysis strategy**

To test the proposed hypotheses, this study employs a set of hierarchical regression analyses with sub-agency² fixed effects to control for unobserved differences between different employee groups.

**Results**

Descriptive statistics and correlations of all the variables are reported in Table 1.
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<tr>
<th>Variables</th>
<th>Mean</th>
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<td>1. Affective commitment</td>
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<td>2. Support for Work-Life Balance</td>
<td>4.21</td>
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<td>.40***</td>
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<td>3. Meaningful work</td>
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<td>4. Satisfaction with Financial Rewards</td>
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<td>5. Social Support</td>
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<td>6. Opportunities for Development</td>
<td>3.92</td>
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<td>.59***</td>
<td>.44***</td>
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<td>7. Fairness</td>
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<td>.39***</td>
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<td>8. Race</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Sex</td>
<td>.52</td>
<td>.50</td>
<td>-.04</td>
<td>-.04</td>
<td>.01</td>
<td>.01</td>
<td>-.08***</td>
<td>-.05</td>
<td>-.04</td>
<td>-.101**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Tenure</td>
<td>.32</td>
<td>.47</td>
<td>-.01</td>
<td>-.04</td>
<td>.00</td>
<td>.00</td>
<td>-.05</td>
<td>-.06</td>
<td>-.05</td>
<td>-.02</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>11. Supervisory status</td>
<td>.04</td>
<td>.19</td>
<td>.02</td>
<td>-.05</td>
<td>.04</td>
<td>.01</td>
<td>-.02*</td>
<td>.00</td>
<td>.00</td>
<td>-.00</td>
<td>-.00</td>
<td>.13***</td>
</tr>
</tbody>
</table>

Note. N = 11,351 employees. *p < .05; **p < .01; ***p < .001. Unstandardized correlations reported.
The convergent validity and discriminant validity of the four latent variables were tested using confirmatory factor analysis (CFA). The measurement model had a good fit to the data with $\chi^2 = 814.253$ ($P = .000$), $df = 21$, RMSEA = .058 ($90\% CI [.054 - .061]$), CFI = .984, TLI = .973, and SRMR = .053. Additionally, all standardized factor loadings were significant and larger than .5 (see Appendix), providing support for the validity of the latent constructs.

The reliability of the scales to measure the four latent constructs is supported in the Appendix by Cronbach’s alpha statistics of the four latent variables, each exceeding the acceptable cut-off value of .70 (Lance, Butts, & Michels, 2006).

The results of the hierarchical regression analyses are reported in Table 2.
Table 2. Hierarchical Regression Results (Outcome: Affective commitment)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1 Control variables</th>
<th></th>
<th>Model 2 Main effect</th>
<th></th>
<th>Model 3 Interaction effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>SE</td>
<td>t</td>
<td>b</td>
<td>SE</td>
</tr>
<tr>
<td>Intercept</td>
<td>1.236</td>
<td>.056</td>
<td>22.263***</td>
<td>.018</td>
<td>.054</td>
</tr>
<tr>
<td>Race (1 = Non-minority; 0 = Minority)</td>
<td>-.004</td>
<td>.013</td>
<td>-.331</td>
<td>.029</td>
<td>.011</td>
</tr>
<tr>
<td>Sex (1= Female; 0 = Male)</td>
<td>-.011</td>
<td>.012</td>
<td>-.925</td>
<td>-.038</td>
<td>.011</td>
</tr>
<tr>
<td>Tenure (1= More than 3 years; 0 = Up to 3 years)</td>
<td>.058</td>
<td>.013</td>
<td>4.523***</td>
<td>.035</td>
<td>.011</td>
</tr>
<tr>
<td>Supervisory status (1 = Supervisor/Manager/Executive; 0 = Non-Supervisor)</td>
<td>.045</td>
<td>.032</td>
<td>1.431</td>
<td>-.003</td>
<td>.028</td>
</tr>
<tr>
<td>Social Support</td>
<td>.112</td>
<td>.007</td>
<td>15.548***</td>
<td>.051</td>
<td>.006</td>
</tr>
<tr>
<td>Fairness</td>
<td>.141</td>
<td>.007</td>
<td>19.615***</td>
<td>.078</td>
<td>.006</td>
</tr>
<tr>
<td>Opportunities for Development</td>
<td>.455</td>
<td>.009</td>
<td>53.428***</td>
<td>.319</td>
<td>.009</td>
</tr>
<tr>
<td>Support for Work-Life Balance</td>
<td>.007</td>
<td>.007</td>
<td>1.002</td>
<td>.028</td>
<td>.027</td>
</tr>
<tr>
<td>Satisfaction with Financial Rewards</td>
<td>.067</td>
<td>.005</td>
<td>12.853***</td>
<td>.057</td>
<td>.021</td>
</tr>
<tr>
<td>Meaningful work</td>
<td>.465</td>
<td>.008</td>
<td>55.720***</td>
<td>.478</td>
<td>.033</td>
</tr>
<tr>
<td>Generation (1 = Millennials; 0 = Generation X)</td>
<td>-.064</td>
<td>.083</td>
<td>-.078</td>
<td>.046</td>
<td>.176</td>
</tr>
<tr>
<td>Support for Work-Life Balance × Generation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfaction with Financial Rewards × Generation</td>
<td>.010</td>
<td>.022</td>
<td>.472</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meaningful work × Generation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R2</td>
<td>.4641</td>
<td>.5878</td>
<td>.5877</td>
<td>.5877</td>
<td>.5877</td>
</tr>
</tbody>
</table>

Note. N = 11,351 employees. Sub-agency fixed effect was controlled for in all Models. *p < .05; **p < .01; ***p < .001. Unstandardized estimates reported.
H1 posited that Millennials would report lower levels of *Affective Commitment* compared with Generation Xers. However, the results from Model 2 in Table 2 show that the direct effect from *Generation* (1=Millennials; 0=Generation Xers) to *Affective Commitment* is not statistically significant. Therefore, H1 is not supported.

H2 stated that *Support for Work-Life Balance* was associated more strongly with *Affective Commitment* of Millennials than Generation Xers. The results from Model 3 in Table 2 shows that the effect of the interaction between *Support for Work-Life Balance* and *Generation* on *Affective Commitment* is not statistically significant. The results, thus, do not support for H2.

H3 postulated that *Satisfaction with Financial Rewards* was associated more strongly with *Affective Commitment* of Millennials than Generation Xers. This hypothesis is not supported as the regression coefficient of the interaction between *Satisfaction with Financial Rewards* and *Generation* is not significant (see Model 3 in Table 2).

H4 proposed that *Meaningful Work* would be associated more strongly with *Affective Commitment* of Millennials than Generation Xers. This hypothesis is not supported as the regression coefficient of the interaction between *Meaningful Work* and *Generation* on *Affective Commitment* is not significant (see Model 3 in Table 2).

In sum, this study finds null findings of generational differences instead of positive findings of no difference. In other words, there is absence of evidence for the differences between Millennials and Generation Xers in the federal agencies at a similar stage of their careers regarding their affective commitment levels and how work experiences influence their attitude. It is important to acknowledge that this finding may simply result from limitations of data and statistical analysis (Leppink, O’sullivan, & Winston, 2017). Nonetheless, this study presents an empirical test and finds no evidence to support common perceptions.
Discussion

This study examines evidence of generational differences between US federal Millennials and Generation Xers. The findings show that the two generations report apparently quite similar affective commitment levels at a similar stage of their careers. Additionally, the findings suggest there are no significant differences in how work experiences influence affective commitment of employees from the two generations. The results visualize federal Millennials who are not much different from the preceding generation and therefore generational stereotypes may be not applicable in the federal workplace.

Theoretical implications

This study contributes to scholarship in four ways. First, it provides evidence about public sector Millennials in comparison with Generation Xers in an important work attitude – affective commitment. Prior public management studies have provided some evidence about Millennial job entrance motivation (Breitsohl & Ruhle, 2016; Henstra & Mcgowan, 2016), job expectation (Curtin et al., 2011), public service motivation (Einolf, 2020), turnover intention (Ertas, 2015; McGinnis Johnson & Ng, 2016), and job mobility (AbouAssi et al., 2019). However, a comparison of Millennials and Generation Xers in an important job attitude that can significantly affect individual behaviors and performance like affective commitment has not been executed. Studying this attitude of Millennials in comparison with prior generations is necessary and important to design appropriate managerial agenda for the changing workforce as well as to reduce stereotypes in the public workplace.

The results that US federal Millennials are not so much different from Generation Xers at a similar stage of their careers in terms of their affective commitment levels as well as how job experiences affect this attitude are aligned with several prior public management studies. For
instance, Ertas (2015) found that most work attributes similarly influence turnover intentions of US federal Millennials and prior generations. Einolf (2020) found that Generation X’s and Millennial MPA students only differ slightly in public service motivation and its causes, and in prosocial behaviors. The results are also consistent with several prior studies in the private sector that found very little evidence for generational differences at work, such as job satisfaction, organizational commitment, turnover (Costanza et al. 2012) and work ethic endorsement (Zabel, Biermeier-Hanson, Baltes, Early, and Shepard, 2017).

Second, the findings also offer interesting insights into the factors that influence affective commitment of Millennials and Generation Xers under 30 years old, or young employees in the federal workforce. Accordingly, meaningful work and developmental opportunities significantly influence affective commitment of employees in the two generations and much higher than financial rewards, social support, and fairness. This is aligned with prior work that found public employees often value intrinsic rewards the most (Bright, 2009; Frank & Lewis, 2004; Taylor & Westover, 2011). Surprisingly, there is no significant association between support for work-life balance and affective commitment for Millennials as well as Generation Xers in the federal workforce when they were younger than 30 years old. This can be explained by the fact that the sample only contains young employees, who may not have childbearing or other family related responsibilities. The findings that financial rewards and support for work-life balance have modest or no influence on Millennials’ affective commitment contradict how Millennials are commonly viewed or stereotyped. In fact, Millennials who are under 30 years old in the federal agencies are mostly influenced by meaningful work, while financial rewards and work-life balance have very modest or no association with their affective commitment.
A possible explanation for this study’s findings is that Millennials working in the public sector may be a self-selected group that are different from Millennials in general, so the general stereotypes may not be applicable. In the public sector, according to public service motivation theory (Perry & Wise, 1990), employees are mostly motivated by intrinsic motivations (want to serve the public rather than material rewards). As such, the characteristics of public employees may overshadow the effect of generation on employees. This is aligned with prior works that showed intrinsic motivation is a significant factor for Millennials to join the public workforce (Breitsohl & Ruhle, 2016; Henstra & Mcgowan, 2016).

Third, the findings of this study also contribute to the generational theory in that it provides further evidence of generational differences in a subset of under-explored employees—those of the public sector. Since findings do not provide support for the differences between US federal Millennials and Generation Xers in their affective commitment’ levels and antecedents, it agrees with other prior studies (e.g., John Bret Becton, Walker, & Jones-Farmer, 2014; Costanza & Finkelstein, 2015b) that suggest generational theory may be too over-generalized. It needs to be further revised to capture the diverse characteristics of members in each generation. More specifically, the findings recommend generational theorists to consider how generational identities interact with working sectors (especially the public sector) and life or career stages to influence employees at work.

Fourth, this study also advances public management research methods by using the time-lag design, studying Millennials and Generation Xers at the same age group at two different time points, to separate the generational difference effect from the age difference effect. Previous public management studies mostly use data of different generations at one time point (Einolf, 2020; Ertas, 2015), and therefore cannot separate age and generational effects when comparing
different generations. Another common approach is only studying Millennials at one time point, which cannot directly compare different generations (AbouAssi et al., 2019; Breitsohl & Ruhle, 2016; Curtin et al., 2011; Henstra & Mcgowan, 2016; McGinnis Johnson & Ng, 2016). Different from prior studies, this study’s approach of using the time-lag design helps differentiate the effects of generational differences from age differences, which is an important factor that can influence employees’ attitudes and behaviors at work (Lyons & Kuron, 2014; Twenge, 2010). Another advantage of this study’s design is using working employee and large-N samples, thereby enhancing the validity of the results over the extant empirical work that only use small student samples (Einolf, 2020; Henstra & Mcgowan, 2016). As such, it provides complement results for prior studies to offer more insights into generational issues at the public workplace.

**Practical implications**

The findings caution public practitioners who are fond of using generational heuristics to treat Millennials at work. Such stereotypes can lead to biased judgement and treatments of Millennials as an employee group at work (Chang, Luo, Walton, Aguilar, & Bailenson, 2019; Kunesh & Noltemeyer, 2019). These biased treatments, in turn, may adversely affect Millennial employees’ emotions, attitudes, and performance (Chang et al., 2019; Inzlicht & Kang, 2010; Meisner, 2012; Schmader, Johns, & Forbes, 2008), and turn Millennials away from joining or continuing to work for the public sector. As such, public managers and other employees should not rely on stereotypes to biasedly treat Millennials.

Furthermore, as job experiences affect affective commitment of Millennial and Generation X employees all the same at a similar stage of their career, public organizations should not rely on generational stereotypes to design different managerial interventions for Millennials. Every management practice within organizations should be designed carefully based
on sufficient empirical evidence. Relying on common stereotypes to design managerial practices is not only ineffective but also imposes more costs on organizations (Becton et al., 2014; Kowske et al., 2010) as well as may negatively affect employees within the organizations.

**Limitations**

Several important limitations should be considered when interpreting the results of this study. First, as this study uses data from one source (employee self-reported), its results can be affected by common method variance (CMV). However, CMV may not be large enough to affect this study’s conclusion since this study used FEVS data that was conducted anonymously to avoid social preference issues as well as validated the latent constructs theoretically and empirically (Conway & Lance, 2010). Additionally, using data from only employee responses is appropriate for this study’s purpose since the independent variables and dependent variables are about employee attitudes and perceptions (Conway & Lance, 2010). Second, since this study used the time-lag design from two cross-sectional databases to test the hypotheses, causal inferences could not be drawn. Third, this study does not control for period effects, and therefore, its results, besides accounting for the generational effect, can be influenced by period differences or changes in society and the economy over time that affect people (Lyons & Kuron, 2014; Twenge, 2010). Fourth, as the year gap between the Millennials and Generation Xers in the sample is not large, the size of the difference between the two groups may be deflated. Lastly, this study used data from FEVS, which were not designed for academic research purposes, and therefore the independent and dependent variables are subject to both known and unknown measurement error.
**Future research directions**

This study opens several fruitful directions for future research. First, public management researchers can investigate whether Millennials are different to other generation employees regarding work-related attitudes and behaviors other than affective commitment. Second, since this study only focuses on Millennials and Generation Xers in their early career stage, future work should examine a more comprehensive range of career stages to see whether results of this study hold across different ages. Lastly, further studies should examine how job experiences affect other work-related attitudes and behaviors between Millennials and other generations’ employees (e.g., Generation Z, Baby Boomers).
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Endnotes

1. The final sample size of the model presented here is reduced moderately (about 23%) due to missing observations of demographic control variables. To ensure the robustness of the results, the hypotheses were tested with the sample without demographic control variables, including 11,074 Millennials and 972 Generation Xers. The robustness test did not produce substantially different results as being shown in the following sections.

2. The next level of organizations under federal agencies (OPM, 2005, 2012).
## Appendix

Measures, standardized CFA factor loadings, and Cronbach’s alpha

<table>
<thead>
<tr>
<th>Variables</th>
<th>Items</th>
<th>Factor loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Affective Commitment</strong></td>
<td>I like the kind of work I do.</td>
<td>.674</td>
</tr>
<tr>
<td>Cronbach’s alpha = .81</td>
<td>My work gives me a feeling of personal accomplishment</td>
<td>.812</td>
</tr>
<tr>
<td></td>
<td>I recommend my organization as a good place to work.</td>
<td>.807</td>
</tr>
<tr>
<td><strong>Support for Work-life</strong></td>
<td>My supervisor supports my need to balance work and other life issues</td>
<td></td>
</tr>
<tr>
<td><strong>Balance</strong></td>
<td>The work I do is important</td>
<td>.728</td>
</tr>
<tr>
<td><strong>Meaningful Work</strong></td>
<td>I know how my work relates to the agency’s goals and priorities</td>
<td>.758</td>
</tr>
<tr>
<td>Cronbach’s alpha = .71</td>
<td>Considering everything, how satisfied are you with your pay</td>
<td></td>
</tr>
<tr>
<td><strong>Satisfaction with</strong></td>
<td>Employees in my work unit share job knowledge with each other</td>
<td></td>
</tr>
<tr>
<td><strong>Financial Rewards</strong></td>
<td>I am given a real opportunity to improve my skills in my organization</td>
<td></td>
</tr>
<tr>
<td><strong>Social Support</strong></td>
<td>Supervisors/team leaders in my work unit support employee development</td>
<td>.716</td>
</tr>
<tr>
<td><strong>Opportunities for</strong></td>
<td>Promotions in my work unit are based on merit</td>
<td>.796</td>
</tr>
<tr>
<td><strong>Development</strong></td>
<td>Awards in my work unit depend on how well employees perform their jobs</td>
<td>.803</td>
</tr>
<tr>
<td><strong>Fairness</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cronbach’s alpha = .78</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Chapter 3. Creating perceptions of reasonable workloads to enhance public employee job satisfaction: The role of supervisor support, co-worker support, and tangible job resources

Abstract

In the face of constantly increasing demands, public employees are perceiving excessive workloads, which can negatively affect their job satisfaction. Despite this, little empirical research examines ways to enhance employee perceptions of reasonable workloads in the public sector. Based on conservation of resources (COR) theory, this study examines the proposition that supervisor support can offer various resources to cultivate perceived reasonable workloads and then job satisfaction. In addition, based on resource caravans’ propositions of COR, this study posits that supervisor support fosters co-worker support, which in turn enhances perceived reasonable workloads. Lastly, tangible job resources are proposed as a boundary factor that can magnify the effectiveness of supervisor support and co-worker support on perceived reasonable workloads. Using structural equation models to analyze data from the 2019 US Federal Employee Viewpoint Survey, this study found empirical support for the above hypotheses. This study offers new scholarly perspectives on the mediating role of co-worker support and perceived reasonable workloads in the relationship between supervisor support and job satisfaction as well as the boundary condition of the above relationships.
Introduction

Public administration researchers and practitioners dedicate special attention to how to augment employee job satisfaction (Cantarelli, Belardinelli, & Belle, 2016) with the promise of beneficial outcomes for employees and organizations (Caillier 2013; Cho and Park 2011; Ko, Hur, and Smith-Walter 2013; Park and Rainey 2007). Extant public management research mostly focuses on studying employees’ positive attitudes and attributes as mediation mechanisms, through which organizational factors foster employees’ job satisfaction. For instance, Chordiya, Sabharwal, and Battaglio (2019) study how leadership behaviors enhance employees’ self-efficacy, and Vermeeren, Kuipers, and Steijn (2014) examine how human resources management (HRM) practices make employees feel cared for, thereby raising their job satisfaction levels.

Stressors adversely affect employee job satisfaction (Cantarelli et al., 2016); therefore, reducing job stressors is among the important ways to improve job satisfaction. Yet, this has not been fully studied in the public sector. One common job stressor in the public workplace is perceived unreasonable workload, referring to the employees’ perception of task demands that are too many to be dealt with given limited resources (Bowling & Kirkendall, 2012; Wickens, 2008). Unreasonable or reasonable workload, thus, depends on how employees subjectively perceive whether their job resources are sufficient to help them cope with their job demands (Wickens, 2008). The subjective nature of workload is similar to other job stressors in the public sector, such as red tape (Jacobsen & Jakobsen, 2018).

Multiple reforms, such as New Public Management and new public governance, are imposing more demands on employees since such reforms require public employees to learn new procedures and change their work habits while still having to complete assigned tasks and fulfil citizens’ increased expectations (Audenaert, George, &
Decramer, 2019; Hassan, 2015). In addition, these reforms, focusing on the efficiency of the public sector, cut operational costs and force public employees to take more responsibilities or have expandable work roles (Audenaert et al., 2019; Grima, Georgescu, & Prud’Homme, 2020). Such change processes, therefore, make workload more unreasonable by increasing the complexity and the demands of the work while reducing resources offered (Audenaert et al., 2019; Grima et al., 2020). Unreasonable workload is harmful as it can negate public employee well-being, health, and work life quality (Bhui, Dinos, Galant-Miecznikowska, de Jongh, & Stansfeld, 2016; Hsieh, Shim, Park, & Eom, 2017), whereas reasonable workload can enhance employees’ positive emotions at work (Cantarelli et al., 2016).

Previous public management studies have shown that supervisors play an important part in fostering employee job satisfaction (Cantarelli et al., 2016; S. Park, 2020). However, how supervisors can alleviate the negative aspects of the job to enhance job satisfaction are rarely studied in the public sector. It is plausible to expect that supervisors play an important role in reducing perceptions of unreasonable workload since supervisors oversee employees’ day-to-day work and provide different types of assistance or resources to help employees deal better with their job demands. This study, therefore, seeks to examine the role of supervisor support in enhancing employee job satisfaction through managing the workload imposed on employees. More specifically, this study addresses two research questions: (1) Does supervisor support enhance job satisfaction through helping employees perceive their workload as reasonable; and (2) If yes, how and when does supervisor support enhance employees’ perceived reasonable workload?

Conservation of resources (COR) (Hobfoll, 1988, 2002) is chosen as the core theory of this study since it is efficient in explaining how stress or well-being is formed.
at work (Hobfoll, Halbesleben, Neveu, & Westman, 2018). COR theory postulates that employees are stressed when their resources (e.g., health, well-being, family support) are lost or threatened to be lost (Hobfoll, 1988, 2002). Therefore, to foster employees’ positive feelings at work (e.g., job satisfaction), it is vital to reduce job stressors to protect their valued resources (Hobfoll, 1988, 2002). Drawing on this, this study proposes that supervisor support can offer various helpful resources for public sector employees to effectively cope with their job demands, thus perceiving their workload as more reasonable and feeling more satisfied at work.

Additionally, based on COR theory (Hobfoll, 1988, 2002), which postulates that resources are often invested to gain more resources and resources often co-travel together in a certain nurturing work environment to create resource caravans, this study proposes that employees with higher supervisor support will tend to have higher co-worker support and perceive their workload as more reasonable. Furthermore, based on the resource-based literature that complementary resources can have interactive effects to enhance outcomes, this study hypothesizes that tangible job resources positively moderate the way social support forms (i.e., supervisor support and co-worker support) affect perceived reasonable workload. Studying the moderating factors like tangible job resources is essential since it enhances our understanding of the boundary nature of complex management phenomena (Chadwick, Way, Kerr, & Thacker, 2013). The research model is illustrated in Figure 1.
This study makes several meaningful contributions to the public management literature. First, it offers an alternative explanation for how supervisor support affects job satisfaction by examining the mediating role of perceived reasonable workload. Despite being a common issue in the public workplace (e.g., Kim and Wright 2007; Shim, Park, and Eom 2017; Hsieh 2014; Bhui et al. 2016), workloads, as a type of job stressor, is rarely studied as a mediator in public management research, thereby limiting our understanding in how to manage employees’ perceptions of workloads to enhance their positive emotions. This study expands the workload literature in public management by showing the subjective nature of workloads and how employee perceptions of workloads can be enhanced by offering more supervisor support at work. Second, this study deepens our understanding of the relationship between supervisor support and perceived reasonable workload by introducing the mediating role of co-worker support. Third, this study advances public management literature by empirically
testing the moderating role of tangible job resources on the effect of social support types (i.e., supervisor support and co-worker support) on perceived reasonable workload. This is critical as it assists our understanding of when supervisor support and co-worker support are effective in helping employees to deal with their job stressors and unfold the complexity of management phenomena. This study also contributes to the COR theory by providing empirical evidence for the relationship between job resources and employee job satisfaction, how employees can use existing resources to harvest more resources at work, and how resources nurture each other to create resource caravans in the workplace. Practically, this study offers ways to reduce workloads and enhance employee job satisfaction in face of increasing job demands in the public sector.

**Literature review and hypothesis development**

**Conservation of resources (COR) theory**

COR (Hobfoll, 1988, 2002) is one of the most popular theories to explain the relationship between resources and human stress and well-being, and has been used widely in the general management studies (Roberson, 2019) as well as in public management research (Trong Tuan Luu et al., 2020; Nguyen, Teo, & Dinh, 2020). Resources are defined as what are valued by people or serve as means to achieve other resources, such as skills, assets, and time (Hobfoll, 2002). Since resources are valued, people make every effort to acquire and conserve resources. Losing resources or facing the risk of losing resources can detrimentally influence human well-being (Hobfoll, 2002). The more resources people possess, the more likely they are to invest resources to gain more resources (gain spirals) and develop higher well-being. In contrast, those who have fewer resources face more stress and are more likely to lose resources (loss spirals) (Hobfoll, 2002; ten Brummelhuis & Bakker, 2012). Furthermore, COR theory proposes that resources in the same environment can nurture and influence each other to...
create resource caravans.

Resources can be classified into different types. With regards to where resources come from, Hobfoll (2002) distinguishes between personal and contextual resources. Contextual resources are located in a social environment and not directly attached to the individual (Hobfoll, 2002). They may include objects (e.g., houses, tools, equipment), conditions (e.g., marriage, employment, social network), social support (e.g., advice, respect, instrumental help, affect), and macro resources (e.g., culture, public policies) (Hobfoll 2002; ten Brummelhuis and Bakker 2012). Personal resources are located within an individual (Hobfoll 2002). They involve key resources (e.g., self-efficacy, optimism, self-esteem), constructive resources (e.g., skills, knowledge, experience), energies (e.g., mood, tangible energies, cognitive energies, attention) (ten Brummelhuis and Bakker 2012; Hobfoll 2002). Each type of resource can have different implications for individual well-being (ten Brummelhuis and Bakker 2012).

**Supervisor support and job satisfaction**

Job satisfaction is defined as ‘a pleasurable or positive emotional state resulting from the appraisal of one’s job or job experiences’ (Locke 1976, p. 1304). Job satisfaction is an important factor in understanding employee behaviors at work, as it correlates with many important outcomes (Cantarelli, Belardinelli, and Belle 2016) such as commitment (Caillier, 2013; Cho & Park, 2011), quality of work (Park and Rainey 2007) and organizational performance (Ko et al., 2013). Job satisfaction also helps to reduce stress (Cantarelli, Belardinelli, and Belle 2016), burnout (Jin & Guy, 2009), and turnover (Freund, 2005; Hassan, 2013).

Public management studies have widely depicted organizational leadership as one of the most important elements to enhance employee positive emotions like job satisfaction (Chordiya et al., 2019; Vermeeren et al., 2014). This study focuses on
lower-level hierarchical management positions that most frequently interact with employees at work — supervisors — and examines how they influence employee job satisfaction. Supervisor support is defined as employee perceptions of the support and care that their supervisors provide for them such as helping them at work, providing development opportunities, supporting their work-life balance, and respecting their contributions (Casper, Harris, Taylor-Bianco, & Wayne, 2011; Oldham & Cummings, 1996; Rafferty & Griffin, 2004). It is tenable that supervisor support can enhance job satisfaction as the support from supervisors may make employees feel cared for and valued, which has been shown to improve job satisfaction in public management literature (Gould-Williams, 2007; Vermeeren, Kuipers, & Steijn, 2011). Existing empirical evidence has widely supported the role of supervisor support in fostering job satisfaction in private organizations (Mathieu, Fabi, Lacoursière, & Raymond, 2015) as well as the public workplace (Cantarelli, Belardinelli, and Belle 2016; Park 2020).

**Hypothesis 1**: Supervisor support is positively related to job satisfaction.

**Perceived reasonable workload as a mediator**

Prior work has shown that supervisors can help to enhance employee experience with their jobs, especially through reducing job stressors (Mayo, Sanchez, Pastor, & Rodriguez, 2012). Accordingly, it is expected that supervisors can promote employees’ perceptions of their workload as reasonable by offering different forms of support that assist employees to deal better with their job demands. More specifically, supervisors, through coaching and mentoring, can improve work goal clarity and enhance employees’ job-related knowledge, skills, and work experience (Trong Tuan Luu, 2019). Additionally, supervisors can provide constructive feedback to help employees achieve work goals more effectively. Supervisors can also empower employees by offering them more flexibility and decision-making authority in their jobs, with which
employees can tailor to their own working styles and schedules. In this way, employees can work more efficiently and feel less overwhelmed by their work demands (ten Brummelhuis & Bakker, 2012). Furthermore, supervisor behaviors, such as encouraging and valuing employee contributions, can enhance employee self-efficacy (Chordiya et al., 2019), perception of competence, and positive emotions, which are valuable resources for employees to cope better with their job demands (Trong Tuan Luu, 2017), and therefore, perceive their workload as more reasonable.

Perceived reasonable workload, in turn, can enhance employees’ job satisfaction. Drawing on COR theory (Hobfoll 1988, 2002), under reasonable levels of workload, employees can retain and gain resources and thus avoid stress and develop more positive emotional states like job satisfaction. Specifically, employees who have a reasonable level of workload do not have to spend excessive time and energy to accomplish their work; thus, they can conserve their valuable personal resources such as health and time. Additionally, these employees will have more time for their personal lives (e.g., family and leisure activities), which may lead to a favorable work-life quality (Caillier 2013). Moreover, a reasonable level of workload can allow employees more time for taking learning and development opportunities, which are important job resources to enhance employee satisfaction (Kim, 2002). Lastly, perceived reasonable workload can signal a positive supervisory treatment towards employees (e.g., supervisors’ care for employees’ well-being), thereby making employees feel cared for and appreciated, and in turn fostering their job satisfaction (Bowling, Alarcon, Bragg, & Hartman, 2015). Prior empirical evidence in the public management literature has shown that reasonable workload is a correlate of job satisfaction (Cantarelli, Belardinelli, and Belle 2016).
The above discussion suggests that supervisor support will indirectly affect employee job satisfaction though enhancing perceived reasonable workload.

**Hypothesis 2:** Perceived reasonable workload mediates the relationship between supervisor support and job satisfaction.

**Co-worker support as a mediator**

Co-workers are people who work at the same work units, do similar or complementary tasks, have the same ranks, and interact frequently with each other about work issues (Rousseau & Aubé, 2010). Co-worker support refers to ‘the extent to which one’s co-workers are helpful, can be relied upon in times of need, and are receptive to work-related problems’ (Menguc and Boichuk 2012, 1360). Since employees interact with their co-workers with much less restrictions and therefore more often than with their supervisors, resources from co-worker support are ‘larger and easier to draw from than the leader-based one’ (Chiaburu & Harrison, 2008). As such, co-worker support is especially valuable for employee well-being and performance, even while controlling for supervisor support (Chiaburu & Harrison, 2008; Sloan, 2017; Thoits, 2011).

According to COR theory, individuals who have abundant resources tend to invest in acquiring more resources, with which can enhance their well-being (Hobfoll, 2002; Hobfoll et al., 2018). Employees who receive supervisor support can have abundant resources, and thus, according to COR, they are more likely to invest these resources to acquire more resources to achieve work goals and receive more resources at work. Therefore, it is plausible to expect that with ample resources built from supervisor support, employees will successfully invest in interpersonal relationships with their co-workers to receive further resources from co-worker support (Chiaburu & Harrison, 2008; Sloan, 2017; Thoits, 2011).
Co-worker support, in turn, can enhance employees’ perceived reasonable workload through providing different types of resources. Specifically, co-workers can share situation-related information to improve employees’ understanding of their job expectations or reduce role ambiguity (Chiaburu & Harrison, 2008) as well as enhance employees’ job knowledge, skills, and experience. Co-workers may cooperate with and assist employees to perform their work effectively (Chiaburu & Harrison, 2008).

Besides instrumental support, co-workers can offer emotional support (e.g., displaying empathy, encouragement, solidarity) to enhance employees’ positive emotions and attitudes (Sloan, 2017; Thoits, 2011) to engage better in their work (Fredrickson, 2001). These resources are also essential for employees to cope effectively with their job demands (Colbert, Bono, & Purvanova, 2016; Paillé, 2013) and in turn perceive their workload as more reasonable.

**Hypothesis 3:** Co-worker support mediates the relationship between supervisor support and perceived reasonable workload.

**Tangible job resources as a moderator**

Tangible job resources are things that have physical or financial values, such as materials, equipment, facilities, and financial assets, offered by the organization for employees’ use in their work situation to accomplish their work goals (Čater & Čater, 2009; Galbreath, 2005). Tangible job resources, thus, come from contextual sources and are part of the ‘objects’ type of job resources as classified by ten Brummelhuis and Bakker (2012) and Hobfoll (2002). Inadequate tangible job resources can be detrimental as they prevent employees from completing their tasks and achieving their work goals (Schaufeli & Bakker, 2004).

Since tangible job resources and social support (supervisor support and co-worker support) are complementary resources (Galbreath, 2016), this study proposes
that they can positively interact with each other to affect employee perceptions of workload. More specifically, employees who receive social support at work can have more knowledge, skills, and tips (Chiaburu & Harrison, 2008; Luu, 2019) to fully utilize their workplace tangible job resources to meet their work goals efficiently and perceive their workload as more reasonable. Therefore, for employees with adequate tangible job resources, support from supervisors and co-workers can exert higher influence on how employees perceive their workload.

In contrast, for employees with insufficient tangible job resources, social support may be less effective in reducing perceived workload. Social support can provide employees with necessary knowledge and skills (Chiaburu & Harrison, 2008; Luu, 2019) to utilize their job resources to achieve their work goals. However, without adequate tangible job resources, such knowledge and skills may be less effective, applicable, and usable to achieve their work goals. In other words, while support from co-workers and supervisors can help employees to be more efficient in using job resources, it may not be a perfect substitute for the lack of tangible job resources as many tangible job resources cannot be compensated for (Rousseau & Aubé, 2010). Thus, despite receiving social support, employees may not easily achieve their work goals without adequate tangible job resources, leading to reduced effectiveness of supervisor support and co-worker support on how employees perceive their workload (Rousseau & Aubé, 2010).

**Hypothesis 4:** Tangible job resources positively moderate the relationship between supervisor support and perceived reasonable workload, such that this relationship is stronger for employees with adequate job resources than for those with inadequate tangible job resources.
**Hypothesis 5:** Tangible job resources positively moderate the relationship between co-worker support and perceived reasonable workload, such that this relationship is stronger for employees with adequate tangible job resources than for those with inadequate job resources.

**Method**

**Data**

2019 Federal Employee Viewpoint Survey (FEVS) data was used to test the hypothesized model. 2019 FEVS was conducted in May – June 2019, and it surveyed how US federal employees perceive their agencies, their managers, and their work experiences. All 1,443,152 federal employees were invited to take this survey with a response rate of 42.6% (615,395 employees responded). This study took 433,373 respondents who have positions classified as non-supervisors and team leaders, as this study focuses on employee perceptions of the support they receive from their direct supervisors and their co-workers. Taking only the non-supervisory respondents helps to control for potential differences in perceptions due to different roles and positions in organizations. Since listwise deletion was used to treat missing data, the final sample size dropped to 391,688 observations, including 54% males, 70% with a bachelor’s degree or higher, and 54% with more than ten years of organizational tenure.

**Variables**

Supervisor support refers to employee perceptions of the support and care that their supervisors provide for them (Casper et al., 2011; Oldham & Cummings, 1996; Rafferty & Griffin, 2004). This variable was measured by a three-item scale, including: ‘My supervisor supports my need to balance work and other life issues;’ ‘My supervisor provides me with constructive suggestions to improve my job performance;’ and ‘My supervisor listens to what I have to say.’
Co-worker support is ‘the extent to which one’s co-workers are helpful, can be relied upon in times of need, and are receptive to work-related problems’ (Menguc and Boichuk 2012, 1360). This variable was measured by two items: ‘The people I work with cooperate to get the job done’ and ‘Employees in my work unit share job knowledge with each other.’ Job satisfaction refers to ‘a pleasurable or positive emotional state resulting from the appraisal of one’s job or job experiences’ (Locke 1976, 1304). This variable was measured with two items: ‘Considering everything, how satisfied are you with your job?’ and ‘Considering everything, how satisfied are you with your organization?’

Perceived reasonable workload refers to how workload was perceived by employees. It was measured with one item: ‘My workload is reasonable.’ Tangible job sources refer to the things such as budget, materials, and human resources, which organizations offer employees to use in their work situation to accomplish their work goals (Galbreath 2005; Čater and Čater 2009). It was measured with one item: ‘I have sufficient resources (for example, people, materials, budget) to get my job done.’ All items were measured using a 5-point Likert-type scale (1 = strongly disagree, 5 = strongly agree).

Although two single-item measures were used in this study, many studies have shown that they often have acceptable properties and do not significantly reduce the reliability of the measures (Bergkvist & Rossiter, 2007; Fuchs & Diamantopoulos, 2009). In addition, single item scales may be beneficial due to their ‘simplicity, brevity or ease of use, and global measurement’ (Kwon and Trail 2005, 72).

Due to model specification issue, this study does not add demographic variables (gender, education, tenure) as control variables. This will not significantly affect the reliability of the findings since these variables have very small correlations with the
main dependent variable (≤.1). This approach is in line with current trends in organizational methods, which caution against adding these demographic control variables since they not only have little meaning but may also distort the focal relationships (Becker et al., 2016; Bernerth & Aguinis, 2016; Carlson & Wu, 2012; Spector & Brannick, 2011).

**Analysis strategy**

The hypothesized model was tested using structural equation modelling (SEM) in the lavaan 0.6-6 package in R version 4.0.0. Since two of the variables were measured using single item scales, the model was tested with the distribution-free diagonally weighted least squares estimation (DWLS). Furthermore, as the respondents were nested in agencies, this study conducted cluster corrected analyses to ensure that reported standard errors and p-values would be more robust.

To test the indirect mechanisms, this study calculated the 95% confidence intervals and p-value of the effects. Bootstrapping was not used to test the indirect effects since it is not necessarily conducted on the data from a very large sample as in the case of this study (Mackinnon 2008). The moderating effects were tested by using the unconstrained approach recommended by Marsh, Wen, and Hau (2004). Accordingly, the indicators of each variable included in the interaction (supervisor support, co-worker support, and tangible job resources) were centered and then paired and multiplied to form the indicators of the interaction variables (supervisor support × tangible job resources and co-worker support × tangible job resources). After that, SEM was used to estimate the effects of supervisor support, co-worker support, and tangible job resources, as well as their interactions on perceived reasonable workload. This unconstrained method is advantageous over the traditional constrained approach since it is simpler and often produces quite similar results (Marsh et al., 2007). In addition,
using structural equation models to test moderation can address the effects of measurement errors, thus increasing the reliability of the results over regression or ANOVA (Edwards, 2009).

Results

Validity and reliability of the latent constructs

The convergent validity and discriminant validity of the three latent variables were tested by using confirmatory factor analysis. The measurement model had a good fit to the data with $\chi^2 = 3943.918$ (P = .000), df = 11, RMSEA = .030 (90% CI [.029 -.031]), CFI = .992, TLI = .985, and SRMR = .010. In addition, all standardized factor loadings were significant and larger than .766 (see Appendix). Therefore, validity of the latent constructs was confirmed.

To confirm the reliability of the scales to measure the three latent constructs, this study used the composite construct reliability coefficients (CR) and average variance extracted (AVE) (Table 1). CR and AVE of the three latent variables exceeded the acceptable cut-off value of .70 recommended by Bagozzi and Yi (1988) and the cut-off value of .50 suggested by Fornell and Larcker (1981) respectively. Hence, the reliability of the latent constructs in the model was supported.
Table 1. Descriptive Statistics, Correlation Matrix, and Reliability

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>SD</th>
<th>CR</th>
<th>AVE</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Supervisor support</td>
<td>4.032</td>
<td>.964</td>
<td>.883</td>
<td>.716</td>
<td>(.846)</td>
<td></td>
<td></td>
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<tr>
<td>2. Co-worker support</td>
<td>3.939</td>
<td>.900</td>
<td>.749</td>
<td>.598</td>
<td>.643***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.774)</td>
</tr>
<tr>
<td>3. Job satisfaction</td>
<td>3.650</td>
<td>1.024</td>
<td>.879</td>
<td>.784</td>
<td>.671***</td>
<td>.645***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.886)</td>
</tr>
<tr>
<td>4. Perceived reasonable workload</td>
<td>3.435</td>
<td>1.171</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>5. Tangible job resources</td>
<td>3.229</td>
<td>1.260</td>
<td></td>
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<td></td>
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<tr>
<td>6. Gender</td>
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<td>7. Education</td>
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<tr>
<td>8. Tenure</td>
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</tbody>
</table>

Note: N = 391,688. CR = Composite reliability, AVE = Average variance extracted. The square root of the average variance extracted reported in parentheses. Standardized correlations reported. *p < .05; **p < .01; ***p < .001.
Hypothesis testing

The structural model had a good fit to data with $\chi^2 = 16,962.973$ (p = .000), df = 32, RMSEA = .037 (90% CI [.036 - .037]), CFI = .992, TLI = .987, and SRMR = .037.

The results of the structural model are presented in Table 2, and Figure 2 and Figure 3.

Table 2. Direct, indirect, and interactional effects.

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Description of paths</th>
<th>Path coefficients (Unstandardized)</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct effects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervisor support → Co-worker support</td>
<td></td>
<td>.681*** (.000)</td>
<td></td>
</tr>
<tr>
<td>Supervisor support → Perceived reasonable workload</td>
<td></td>
<td>.055*** (.001)</td>
<td></td>
</tr>
<tr>
<td>Co-worker support → Perceived reasonable workload</td>
<td></td>
<td>.293*** (.001)</td>
<td></td>
</tr>
<tr>
<td>Perceived reasonable workload → Job satisfaction</td>
<td></td>
<td>.108*** (.000)</td>
<td></td>
</tr>
<tr>
<td><strong>H1</strong></td>
<td>Supervisor support → Job satisfaction</td>
<td>.336*** (.001)</td>
<td>Supported</td>
</tr>
<tr>
<td><strong>Indirect effects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>H2</strong></td>
<td>Supervisor support → Perceived reasonable workload → Job satisfaction</td>
<td>.006*** [.006; .006]</td>
<td>Supported</td>
</tr>
<tr>
<td><strong>H3</strong></td>
<td>Supervisor support → Co-worker support → Perceived reasonable workload</td>
<td>.199 *** [.198; .200]</td>
<td>Supported</td>
</tr>
<tr>
<td><strong>Interactional effects</strong></td>
<td></td>
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<tr>
<td><strong>H4</strong></td>
<td>Supervisor support × Tangible job resources → Perceived reasonable workload</td>
<td>.022*** (.000)</td>
<td>Supported</td>
</tr>
<tr>
<td><strong>H5</strong></td>
<td>Co-worker support × Tangible job resources → Perceived reasonable workload</td>
<td>.002*** (.000)</td>
<td>Supported</td>
</tr>
</tbody>
</table>

Note: N = 391,688. Standard errors reported in parentheses. 95% Confidence intervals reported in brackets. *p < .05; **p < .01; ***p < .001.
Figure 2. Results of structural equation model analysis

Note: Standardized path coefficients reported. *p < .05; **p < .01; ***p < .001.
Standardized indirect effects: (Supervisor support → Perceived reasonable workload → Job satisfaction) = .005***; (Supervisor support → Co-worker support → Perceived reasonable workload) = .141***
Figure 3. Standardized effects of supervisor support on perceived reasonable workload at different levels of tangible job resources

Figure 4. Standardized effects of co-worker support on perceived reasonable workload at different levels of tangible job resources
H1 posited that supervisor support is positively related to job satisfaction. Table 3 shows that the direct effect from supervisor support on job satisfaction was positive and statistically significant (b = .336; p < .001). Therefore, H1 was supported.

H2 stated that perceived reasonable workload mediates the relationship between supervisor support and job satisfaction. The results show that supervisor support was positively and significantly related to perceived workload (b = .055; p < .001). In addition, the direct path from perceived reasonable workload to employee job satisfaction was statistically significant (b = .108; p < .001). Furthermore, the indirect effect of supervisor support on job satisfaction via perceived reasonable workload was positive and significant (b = .006; 95% CI = [.006; .006]). The results, thus, provided support for H2.

H3 postulated that co-worker support mediates the relationship between perceived supervisor support and reasonable workload. It was supported as the two direct paths were significant: supervisor support was positively and significantly related to co-worker support (b = .681; p < .001), and co-worker support was positively and significantly related to perceived reasonable workload (b = .293; p < .001). Additionally, the indirect effect of supervisor support on perceived reasonable workload via co-worker support was positive and significant (b = .199; 95% CI = [.198; .200]). Therefore, H3 was supported.

H4 stated that tangible job resources positively moderate the relationship between supervisor support and perceived reasonable workload. This hypothesis was supported as the regression coefficient of the interaction between supervisor support and tangible job resources on perceived reasonable workload was positive and significant (b = .022; p < .001). Figure 2 illustrates this interactive relationship in which the effect of supervisor support on perceived reasonable workload increased at higher levels of tangible job resources.
H5 proposed that tangible job resources positively moderate the relationship between co-worker support and perceived reasonable workload. This hypothesis was supported as the regression coefficient of the interaction between co-worker support and tangible job resources was positive and significant (b = .002; p < .001). Figure 3 illustrates this interactive relationship in which the effect of co-worker support on perceived reasonable workload increased at higher levels of tangible job resources.

Discussion

Theoretical implications

This study extends scholarship in public management literature three ways. First, this study proposes and tests how perceived reasonable workload mediates the relationship between supervisor support and job satisfaction, which has not yet been studied in the public management literature. Previous studies have provided empirical evidence about the positive influence of supervisor on employee experience of their work (e.g., supervisor support can help to buffer the negative effect of bullying [Nguyen, Teo, and Dinh 2020]) and about how job demands can negatively affect employee job satisfaction (e.g., goal ambiguity can reduce employee job satisfaction [Jung 2014; Jong 2016]). Despite these, how supervisors can help to reduce the negative side of perceived workload to enhance employee job satisfaction is rarely studied. As public employees are facing increasing job demands that can cause serious problems to their work and life (Bhui et al., 2016; Hsieh, 2014; Shim et al., 2017), focusing on what organizations can to do enhance their perceived reasonable workload and job satisfaction is necessary and important.

This study also contributes to the literature about workload in public management research. Public management literature mostly treats workload as a type of job demands without
considering the possible impacts of other job resources to reduce perceived workload in the workplace to help employees feel better at work. This approach, thus, limits our understanding about how to help alleviate the negative aspects of perceived workload on employees’ well-being. This study is among the first to provide empirical evidence about how supervisors can enhance employee positive perceptions of their workload to promote their job satisfaction at the public workplace. This study further considers workload in its subjective nature rather than objective nature, deepening our understanding about workload in the public sector.

The study’s findings that supervisor support can help to create more reasonable workload are aligned with previous studies which found that social support can effectively help employees to deal with job stressors (Halbesleben & Buckley, 2004; Sochos, Bowers, & Kinman, 2012). The finding that perceived reasonable workload can enhance job satisfaction is also consistent with the COR theory in that reasonable workload can help employees sustain valuable resources, thus, can enhance their positive emotions, while perceived unreasonable workload leads to resource loss and in turn negative psychological state.

Second, the findings provide more insights on the underlying mechanisms of the relationship between supervisor support and job satisfaction by identifying co-worker support as a mediator for this link. In other words, this study has provided a two-stage mediation mechanism-on the relationship between supervisor support and job satisfaction that includes co-worker support and perceived reasonable workload as mediators. Existing public management studies mostly examine single-stage mediation mechanisms (i.e., one mediator) and rarely look at a two-stage mediation mechanism (i.e., two mediators). This study takes a further step to add two mediators to deepen our understanding of how supervisor support affects employee job
satisfaction. It shows that employees who work under a supportive supervisor tend to have more co-worker support that enhance their perceived reasonable workload and their job satisfaction.

By proposing and testing the mediating role of co-worker support, this study also expands the literature about co-workers in the public context. Existing studies often consider co-worker support in interactional effects with leader support or supervisor support in affecting employees at work. To the best of the author’s knowledge, this study presents a novel test of co-worker support as a mediator between supervisor support and employee positive emotions. This study, therefore, fills this gap in the literature and broaden our understanding about how to foster co-worker support at work to increase employee positive emotions. It finds that supervisor support may drive employees to invest their resources in interpersonal relationships with their co-workers to receive more resources in form of co-worker support. In addition, as co-worker support can help employees to perceive their workload as more reasonable, this study adds to the literature the importance role of peers in helping employees to deal with their job demands. The results are also in line with the COR theory (Hobfoll, 2002; Hobfoll et al., 2018) that postulates that individuals who have more resources are more likely to invest in acquiring more resources, and organizational resources often co-travel to create resource caravans (Hobfoll 2002; Hobfoll et al. 2018). This study, therefore, provides empirical support for the COR theory in terms of resource investment and resource caravans.

Third, this study contributes the boundary conditions for the impact of social support (supervisor support and co-worker support) on employee workload by examining the moderating role of tangible job resources. This study finds that employees benefit more from social support when they have higher levels of tangible resource adequacy. Since the interactional approach is important to understand the complexity in management research (Chadwick et al., 2013), this
The study expands our understanding of the effect of social support in the workplace. The complementary approach also helps us to advance the public management literature by illustrating the interactional effect of different types of contextual resources, including social support (supervisor support and co-worker support) and tangible job resources, which have not been fully understood in the public management literature.

**Practical implications**

From a practical viewpoint, findings of this study offer several helpful implications. First, as supervisors play a crucial role in enhancing co-worker support, perceived workload and job satisfaction, supervisors need to be aware of their importance in supporting their employees at work. Previous studies have suggested some helpful strategies that supervisors can use. For example, supervisors can make clear job guidance and assist employees with their work issues to help their employees meet their job goals more effectively (Shim, Park, & Jeong, 2019; Thomas & Lankau, 2009). In addition, supervisors, by building good relationships and providing emotional support, can help employees feel more positive and thus, more easily overcome difficulties in their jobs (Fredrickson, 2001, 2004). Furthermore, by acting as role models in helping employees at work, supervisors can also help employees to model their behaviors to support other co-workers at work and receive co-worker support in return and complete their jobs more effectively (Trong Tuan Luu, 2017). Public organizations should also provide training for supervisors to help them be aware of their importance in enhancing employee positive emotions and how to effectively support employees in their work.

Second, since results showed the important role of co-workers in helping employees to perceive their workload more, public organizations should adjust their job designs, organizational policies, and management practices to enhance interpersonal relationships among
co-workers. For example, public organizations can design jobs to require more teamwork and set team goals and team compensation systems. These will help employees to interact more with each other and enhance interpersonal relationships (Bamberger & Levi, 2009; Klein et al., 2009). Organizations can also train employees to improve their teamwork skills, helping them work better with their co-workers (Klein et al. 2009). More importantly, public managers should act as a role model of supportive behavior as well as build a supportive team culture, thereby promoting supportive behavior among team members.

Third, as a reasonable level of workload can significantly enhance employee job satisfaction, public organizations need to create reasonable workload for employees. A solution drawn from this study is that organizations can create a supportive environment to enhance social support at work (supervisor support and co-worker support) to effectively help employees to deal with their job demands and thus, can reduce their workload. Another recommendation is that public organizations need to provide more training opportunities to help increase employee competencies, helping them complete their work more effectively and perceive their workload as more reasonable. Furthermore, since tangible job resources are also important to improve the effectiveness of social support on reducing workload, public organizations should provide employees sufficient tangible job resources to help them deal better with their job demands and perceive workload as more reasonable. Lastly, supervisors should work with employees to build SMART goals to help employees achieve their work goals more efficiently and perceive workload as more reasonable.

**Limitations**

Beside numerous strengths, this study contains a number of important limitations. First, as this study used cross-sectional data to test the hypotheses, the analysis does not support firm
causal inferences. Second, there may be common method variance (CMV) issues as this study only used self-reported data from employees (one source). Despite this, this study took cautious steps to make sure that CMV is not large enough to significantly distort estimations (Fuller, Simmering, Atinc, Atinc, & Babin, 2016), including using the survey that was conducted anonymously to avoid social preference issues and validating the latent constructs theoretically and empirically (Conway & Lance, 2010). Additionally, the two significant interactive effects signal that CMV in this study was not strong enough to deflate such effects (Siemsen, Roth, & Oliveira, 2010). Third, although single-item measures may not significantly reduce the reliability of the measures, two variables (perceived reasonable workload and tangible job resources) are better measured with multiple-item scales. Lastly, the independent and dependent variables may not be perfectly measured in this study as this study use FEVS 2019 survey, which was not designed for academic research purposes.

**Future research directions**

This study suggests several promising directions for future research. First, future research may provide additional empirical evidence for the COR theory by studying how employees can use existing resources to create more resources at work. Second, as this study showed that employees perceive their workload as more reasonable when they are provided with social support, future research can investigate whether and how other types of workplace resources can help employees to effectively cope with their job stressors to promote well-being. Third, public management research should look at job stressors at work beyond workload and examine how they affect employee well-being and what organizations can do to help alleviate these negative experiences of the job. Lastly, future research should look at other contextual contingency factors related to agencies' types, occupations, and stakeholders that may influence the
relationships in this study.
References


101


105


Appendix.

Measures and standardized CFA factor loadings

<table>
<thead>
<tr>
<th>Variables</th>
<th>Items</th>
<th>CFA Factor loadings (standardized)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Supervisor support</strong></td>
<td>My supervisor supports my need to balance work and other life issues.</td>
<td>.804</td>
</tr>
<tr>
<td></td>
<td>My supervisor provides me with constructive suggestions to improve my job performance.</td>
<td>.858</td>
</tr>
<tr>
<td></td>
<td>My supervisor listens to what I have to say.</td>
<td>.865</td>
</tr>
<tr>
<td><strong>Co-worker support</strong></td>
<td>The people I work with cooperate to get the job done.</td>
<td>.783</td>
</tr>
<tr>
<td></td>
<td>Employees in my work unit share job knowledge with each other.</td>
<td>.766</td>
</tr>
<tr>
<td><strong>Job satisfaction</strong></td>
<td>Considering everything, how satisfied are you with your job?</td>
<td>.897</td>
</tr>
<tr>
<td></td>
<td>Considering everything, how satisfied are you with your organization?</td>
<td>.876</td>
</tr>
<tr>
<td><strong>Tangible job resources</strong></td>
<td>I have sufficient resources (for example, people, materials, budget) to get my job done</td>
<td></td>
</tr>
<tr>
<td><strong>Perceived reasonable workload</strong></td>
<td>My workload is reasonable.</td>
<td></td>
</tr>
</tbody>
</table>
Abstract

Extant research on trust in public administration focuses on trust in a specific level of management, ignoring the connection of trust in different management levels and their effects on employees. Building on the trickle-down and trickle-up models, this study proposes that employee trust in senior leaders fosters their trust in direct supervisors and vice versa. Also, drawing on the job demands-resources model, we argue that trust in senior leaders and direct supervisors indirectly affects extra-role behavior through psychological well-being, and that workload moderates the above effects. Moreover, as leaders and supervisors play complementary roles, we predict that trust in senior leaders and trust in direct supervisors positively interact to enhance psychological well-being. Using the latent moderated structural model with data from the 2019 Federal Employee Viewpoint Survey, we find empirical support for our hypotheses. This study broadens scholarly knowledge about the connection of trust in multi-level managers and their effects on employees’ attitudinal and behavioral outcomes.

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1 This research was conducted by Thi Hong Nhung Nguyen and Luu Trong Tuan. It has been published at Review of Public Personnel Administration. The link to the published article is: https://doi.org/10.1177%2F0734371X20979683

Introduction

Despite the many changes in public agency structures brought about by New Public Management, many public organizations still have hierarchical structures with multiple managerial levels (Park, 2012). As such, public organizational effectiveness largely depends on how well different management levels coordinate and interact with each other to shape employees’ positive attitudes and behaviors (Dechurch, Hiller, Murase, Doty, & Salas, 2010; Wilson, 1989). Therefore, understanding how different managerial level behaviors relate to each other is essential for public organizations to develop a more holistic human resource management (HRM) strategy to effectively manage their workforce.

This study examines the connection between two managerial levels - senior leaders and direct supervisors - in terms of employee trust in management. Trust in management is important since followership effectiveness often results from employee perceptions and acceptance of leadership behaviors (Bjugstad, Thach, Thompson, & Morris, 2006). Since trust is based on the perceptions of the trustworthiness of leaders and supervisors (Taylor, 2018a), studying trust has important implications for leadership effectiveness. Additionally, it is essential to examine how trust in senior leaders and trust in direct supervisors influence each other to provide guidance for public organizations to develop an effective people management agenda to build employee trust in multi-level managers and in turn in the entire organization. Furthermore, studying the interactional effect between trust in senior leaders and trust in direct supervisors is vital to understand the multifaceted nature of trust in the public context. Despite this, extant public administration literature has not paid attention to the above relationships, focusing separately on trust in different levels of management as either trust in leaders (Asencio, 2016; Chen, Hwang, & Liu, 2012) or trust in supervisors (Kim & Holzer, 2016; Miao, Newman, Schwarz, & Xu, 2014).
This study serves two purposes: (1) exploring the relationship between trust in senior leaders and trust in direct supervisors in public organizations; (2) examining whether and how trust in senior leaders and trust in direct supervisors affect public employee extra-role behavior, defined as what employees do beyond their job requirements (Organ, 1988). Extra-role behavior is becoming more vital for public organizational success since public employees are facing increasing citizen demands for public service deliveries amid budget cutbacks and new environmental complexities (Hassan, 2015; Shim & Faerman, 2017; Vigoda-Gadot & Beeri, 2011; Wright & Pandey, 2010). Public sector employees, therefore, should be motivated to engage in extra-role behavior by going beyond their work roles to provide better services and enhance citizen satisfaction (Morgeson & Petrescu, 2011). They should also need to suggest initiatives or new solutions to improve public services in increasingly complex contexts (de Geus, Ingrams, Tummers, & Pandey, 2020).

Based on the trickle-up and trickle-down effects literature (Wo, Schminke, & Ambrose, 2019), which postulates that perceptions and behaviors can transfer up and down the organizational hierarchy, we posit a positive relationship between trust in senior leaders and trust in direct supervisors. Moreover, drawing on the job demands-resources (JD-R) model (Bakker & Demerouti, 2008, 2017), we argue that trust as a job resource can trigger a motivational process, fostering employee psychological well-being and eventually extra-role behavior. Additionally, since senior leaders and direct supervisors play different roles in the public workplace, we also hypothesize that trust in the two referents can act as complementary resources, and thus, positively interact with each other to have a greater impact on employee psychological well-being.
Relying on the JD-R model, which suggests that job demands can moderate the relationships between job resources and employees’ outcomes (Bakker & Demerouti, 2008, 2017), our study also proposes the moderating role of workload in the indirect relationship between trust and extra-role behavior. Workload is a common issue in the public workplace due to increasing public demands and multiple public sector reform initiatives (Audenaert, George, & Decramer, 2019; Grima, Georgescu, & Prud’Homme, 2020; Joyce & Pattison, 2010). Therefore, studying workload as a moderator provides practical implications for public managers to effectively utilize trust to activate extra-role behavior.

Our research contributes meaningfully to the public administration and public HRM literature in four aspects. First, we extend the literature on trust in the public sector by studying how employee trust in senior leaders can influence employee trust in direct supervisors and vice versa. Second, we highlight the importance of reference matching in studying trust in the public workplace when simultaneously exploring the separate effects of the two trust referents (i.e., trust in senior leaders and trust in direct supervisors) as well as their interactional effects on employees. Third, we also provide empirical evidence of the mediating and moderating mechanisms underlying the relationship between trust in management and employee extra-role behavior. Lastly, our study expands the JD-R model in three novel ways: (a) exploring a new type of job demand (i.e., unreasonable workload); (b) investigating the interdependence between the two types of job resources (i.e., trust in senior leaders and trust in direct supervisors); and (c) discovering the opposite moderating roles of job demands (i.e., unreasonable workload) in the effects of job resources (i.e., trust in senior leaders and trust in direct supervisors) on employees (i.e., well-being and extra-role performance). Our findings should also benefit public
organizations by suggesting an effective managerial agenda to enhance trust to augment employees’ positive attitudes and behaviors.

The structure of the article is as follows. First, we review the related literature and propose hypotheses about how trust in multi-level managers connect to each other and influence employee extra-role behavior. Following this is the data section that explains the data used, variable measurement, and analysis strategies. We then present the results of testing the measures’ validity and reliability, and the hypothesized model. Finally, we discuss theoretical and practical implications, acknowledge the limitations of our work, and suggest directions for future research.

**Literature Review and Hypothesis Development**

**The job demands-resources model**

The JD-R model classifies job characteristics into the two types (i.e., job resources and job demands) to explain employee attitudes and behaviors (Bakker & Demerouti, 2017). Job resources are any features of the job that can reduce job demands, help achieve work goals, and foster development; whereas job demands are any features of the job that demand physical or mental effort (Demerouti, Nachreiner, Bakker, & Schaufeli, 2001). For instance, public administration scholars have viewed job-goal specificity, performance feedback, supervisor support (Shim, Park, & Jeong, 2019), and developmental rewards (Bauwens, Decramer, & Audenaert, 2019) as job resources, and organizational resource declines, work overload (Shim et al., 2019), expected contributions (Bauwens et al., 2019), and red tape (Borst, Kruyen, & Lako, 2019) as job demands when applying the JD-R model.

The JD-R model argues that job resources can trigger a “motivational process” that intrinsically and extrinsically motivates employees to reach higher levels of well-being and
performance (Bakker & Demerouti, 2017). For instance, job resources can promote employee
development and task completion. In contrast, job demands create a “health-impairment process”
which can negatively affect employee well-being and performance (Bakker & Demerouti, 2017).
This is because under a job demand, employees have to spend more effort and energy.

Job resources and job demands, in addition, can interact to affect employee attitudes and
behaviors (Bakker & Demerouti, 2017). Specifically, job resources impact employee well-being
and performance most strongly under conditions of high job demands. A possible explanation is
that under an excessive job demand, a job resource is strongly needed and useful to promote
employee well-being and performance (Bakker & Demerouti, 2017). Some public administration
research offers support for this proposition (e.g., Bauwens et al., 2019; Borst, 2018), while others
do not (e.g., Borst, Kruyen, & Lako, 2019; Shim et al., 2019).

**Trickle-down and trickle-up models**

Trickle effects figure the “indirect social influence of Party A on Party C via Party B
(Party A → Party B → Party C)” (Wo et al., 2019, p. 4). Trickle effects (i.e., indirect effects)
models are distinct from the commonly used direct effects models. Direct effects models focus
on how an individual directly interacts with and impacts another individual and vice versa.
Trickle effects models, in contrast, examine how one actor indirectly influences another actor
through a mediating actor. In these models, people can influence each other even though they
have very little or no interaction with each other. Trickle effects models, thus, expand our
knowledge about social influence in organizations beyond the direct interactions of relational
actors in social networks and are important for understanding the whole working environment.

Within organizations, the two most common trickle effects are trickle-down and trickle-up.
Trickle-down models are a process in which “perceptions, feelings, attitudes, and behaviors”

114
transfer down across the “organizational hierarchy” (Wo et al., 2019, p. 2). For instance, empowering leadership can indirectly affect public employees through managers’ behaviors (Park & Hassan, 2018). In contrast, trickle-up models describe the process in which “the perceptions, feelings, attitudes, and behaviors of individuals” transfer up from lower to higher levels in organizations (Wo et al., 2019, p. 2). An example of this is how employees’ willingness to join corporate social responsibility partnerships can indirectly affect managers’ participation through impacting supervisors’ behaviors (Kolk, Vock, & van Dolen, 2016). An important perception or feeling to study within this framework is trust in leadership.

The connection between trust in senior leaders and trust in direct supervisors

Employee trust in senior leaders (or direct supervisors) is defined as “a psychological state of willingness to accept vulnerability based on positive expectations of leaders [or direct supervisors] that derive in part from trustworthiness perceptions” (Fulmer & Ostroff, 2017, p. 2). Public employees trust their senior leaders (or direct supervisors) based on their perceptions regarding the ability, integrity, and benevolence of those actors (Taylor, 2018a). Trust in senior leaders and trust in direct supervisors are separate constructs since public employees can have different degrees of trust in different management levels, and trust in each management level can impact public employee behaviors differently (Taylor, 2018a).

Despite being different, trust in senior leaders and trust in direct supervisors can have a close relationship. This relationship can be explained by trickle up and trickle-down models. Trickle-down models, based on social learning theory (Bandura, 1977), suggest that employee trust in senior leaders affect employee trust in direct supervisors. This is because supervisors tend to learn and imitate the behaviors of their leaders through observations and interactions. Social learning theory has been applied widely in public administration studies, showing that
subordinates tend to learn positive behaviors from leaders (Luu, 2016; Schwarz, Newman, Cooper, & Eva, 2016). In addition, Park and Hassan (2018) showed that leadership behaviors (empowering) can trickle-down from top leaders to managers in the public workplace. The above discussions suggest that if leaders are trustworthy, supervisors will learn from their leaders to be trustworthy to employees (De Cremer, van Dijke, Schminke, de Schutter, & Stouten, 2018). Thus, if employees trust their top leaders, they are more likely to trust their direct supervisors.

Trickle-up models suggest that employee trust can travel up from trust in direct supervisors to trust in senior leaders, or that subordinates are more inclined to trust their senior leaders if they trust their direct supervisors (Fulmer & Ostroff, 2017). As employees interact with and know their direct supervisors more than top leaders, they are inclined to trust their supervisors more. Trust in direct supervisors, however, can influence employee trust in senior leaders (who are less familiar to them) (Coleman, 1990; Krackhardt, 1992) since employees tend to classify all management members as a group that have similar characteristics (Fiske, 2000; Macrae & Bodenhausen, 2000). Thus, if employees believe that their direct supervisors are trustworthy, they will be inclined to think their senior leaders have similar characteristics, and eventually trust their leaders. Empirical evidence has shown that trust in direct leaders can be “transferred upward” to top leaders (Fulmer & Ostroff, 2017b, p. 3). From the above discussion, it is likely that trust can both transmit up and down between the two management levels in public organizations. Therefore, we hypothesize:

**Hypothesis 1.** Trust in senior leaders and trust in direct supervisors are positively correlated.

The indirect effect of trust through psychological well-being on extra-role behavior

Psychological well-being is defined as “the positive affective states associated with happiness and meaningfulness at work” (Avey, Wernsing, & Palanski, 2012, p. 25). The effect of
trust in management (i.e., senior leaders and direct supervisors) on employee psychological well-being can be explained by the JD-R model. Accordingly, trust in management can act as a job resource since employees who have trust in their managers may feel more confident that they can access support from managers to enhance their performance and professional development (Chughtai, Byrne, & Flood, 2015; Perry, 2004). Therefore, employees who trust in their management will feel more positive at work or have higher levels of psychological well-being.

On the basis of this logic, we hypothesize:

**Hypothesis 2a.** Trust in senior leaders is positively related to employee psychological well-being;

**Hypothesis 2b.** Trust in direct supervisors is positively related to employee psychological well-being.

Extra-role behavior is defined as employee behaviors that extend beyond what is formally required in their jobs (Organ, 1988). An example of this is when employees put forth extra effort to find new ways to do a job more effectively. This definition is similar to employee conscientiousness—a dimension of organizational citizenship behavior (OCB), which involves a wider range of employee extra-role behaviors. Conscientiousness is a unique dimension that focuses more narrowly on the job, making it appropriate to measure extra-role behavior. Extra-role behavior has gained attention from public administration scholars (de Geus et al., 2020) as this behavior is vital for public organizations to serve increasing demand from citizens with their strained budgets (Hassan, 2015; Pandey, 2010).

Building on the broaden and build theory of positive emotions (Fredrickson, 2001, 2004), the JD-R model (Bakker, 2011; Bakker & Demerouti, 2007, 2008) suggests that employee well-being can lead to employee extra-role behavior. This is because employees with high levels of
well-being have positive emotions that broaden their mindsets and encourage them to explore their jobs more (Fredrickson, 2001, 2004). Broadened mindsets, in turn, can help to build resources that foster employee success (Fredrickson, 2001, 2004). Thus, employees with high levels of psychological well-being are more likely to devote more time and effort to make their jobs and their organizations better in order to harvest more positive feelings from their jobs. Psychological well-being, therefore, is an important factor that can urge employees to devote more to their extra-role behavior. Thus, we propose:

**Hypothesis 3.** Employee psychological well-being is positively related to employee extra-role behavior.

**Hypothesis 4a.** Employee psychological well-being mediates the relationship between trust in senior leaders and employee extra-role behavior;

**Hypothesis 4b.** Employee psychological well-being mediates the relationship between trust in direct supervisors and employee extra-role behavior.

**The interactive effect of trust in senior leaders and trust in direct supervisors**

According to the trickle-down and trickle-up models (Wo et al., 2019), trust in senior leaders can help to foster trust in direct supervisors and vice versa. These increased job resources, according to JD-R model (Bakker & Demerouti, 2008, 2017), in turn enhance employee psychological well-being. Furthermore, we argue that trust in the two managerial levels can interact with each other to amplify their effects on employee psychological well-being. This argument is based on the resource-based literature that argues combining complementary resources can yield greater effects than when each resource is provided separately (Galbreath, 2016). Since senior leaders and direct supervisors have different functions at work, we expect
that trust in senior leaders and trust in direct supervisors can interact complementarily with each other to leverage the effect of these resources on employee psychological well-being.

Specifically, supervisors are in charge of overseeing employees’ day to day work such as assigning tasks, providing guidance, and evaluating employees’ work performance. Employees who trust in their direct supervisors can be confident that their supervisors will care about them and support them to achieve their work goals (Chughtai et al., 2015), leading to improved psychological well-being. However, it is not sufficient to reach a high level of well-being since employees also need to ascertain the macro-organizational conditions that can affect their professional lives – conditions that mostly depend on senior leaders (e.g., compensation policies and job security). Together, trust in senior leaders and trust in direct supervisors can help optimize employee psychological well-being since they offer different types of job resources that are complementarily essential to employee professional development.

In contrast, the absence of trust in one referent will reduce the effectiveness of trust in the other referent on influencing employee psychological well-being and employees will therefore not be better off in this case. Specifically, it is difficult for employees to reach a high level of psychological well-being if they only trust their supervisors yet distrust their leaders who create uncertainty about macro-organizational conditions that can negate their overall professional lives. Alternatively, those having high trust in senior leaders but low trust in supervisors will find it hard to stay highly positive since they are less inclined to rely on supervisory support to deal with their daily work. From the above discussion, we hypothesize:

**Hypothesis 5.** Trust in senior leaders and trust in direct supervisors have positive interactive effects on psychological well-being.
The moderating role of workload

Workload is defined as “the demand imposed by tasks on the human’s limited mental resources” (Wicken, 2008, p. 452). There are many different types of demands that can constitute a workload (e.g., the number of tasks, time pressure to finish a task, or task complexity) (Cain, 2007). Resources such as personal capabilities or organizational support can affect how individuals perceive workload (Cain, 2007). There are two regions of workload depending on the amount of job demands in comparison to job resources (Wicken, 2008, p. 452). Employees tend to perceive their workload as unreasonable when their resources (both physical and psychological) are insufficient to accomplish the requirements of their tasks. Unreasonable workload, thus, can also imply a lack of organizational support, or a lack of fair recognition and rewards in relation to the assigned job demands. In contrast, employees will be more likely to perceive their workload as reasonable when their job resources are high enough to buffer demands. Expressed differently, employees can perceive high job demands positively (reasonable workload) or negatively (unreasonable workload) depending on the number of resources (personal and contextual) available to help them fulfil their job demands.

Unreasonable workload is often classified as a type of job demands in the JD-R model as it requires employees to expend extra physical and psychological resources to achieve their work goals. Research has shown that unreasonable workload can cause stress (Bhui, Dinos, Galant-Miecznikowska, de Jongh, & Stansfeld, 2016), work exhaustion (Kim & Wright, 2007; Shim, Park, & Eom, 2017), and burnout (Hsieh, 2014; Sweeney & Summers, 2002). Unreasonable workload can also negatively affect employee work-life balance (Taylor, 2018b) and quality of work life (Chui, Look, & Mott, 2014), since they have to reduce resources for their personal duties and leisure activities.
Since supervisors often directly assign work for employees, employees will relate their workload (reasonable or unreasonable) with how their direct supervisors treat them (Bowling, Alarcon, Bragg, & Hartman, 2015). Although trust in direct supervisors and unreasonable workload are commonly classified as job resources and job demands, both of them are related to supervisors’ behaviors, suggesting a non-traditional interacting relationship (compared to the JD-R model). Specifically, public HRM studies have suggested that the alignment among managerial treatments at the same management levels can increase the positive outcomes for employees, whereas unaligned treatments can reduce the effects. For instance, at high levels of management, Mariani, Gigli, & Bandini (2019) reported that pay-for-performance can positively interact with other empowering practices to affect public employees, whereas Borst et al. (2019) found that red tape negatively interacts with organization-related resources to foster public employees’ work engagement. At lower levels of management, Shim et al. (2019) showed that work overload negatively interacts with supervisor support, job-goal specificity, and performance feedback to influence public employee OCB. The above evidence suggests that trust (i.e., a type of employee perceptions of managerial treatment), when aligned with other managerial treatments at the same management levels, can have combined positive outcomes and vice versa.

As both workload and trust are related to supervisors’ behaviors, the alignment between them can have important implications for their interaction effects on employee behaviors. Reasonable workload can signal a positive supervisory treatment of employees (e.g., that direct supervisors care for them). This is because employees having reasonable workload will have more time for their personal lives (e.g., family and leisure activities) that can lead to a favorable quality of health and work life. Reasonable workload together with trust in direct supervisors,
therefore, can increase the alignment of the positive supervisors’ treatments of employees. This alignment, in turn, can amplify the effect of direct supervisors’ treatments on employee well-being. Specifically, in those employees with reasonable workload, trust in direct supervisors can translate to more well-being.

Conversely, due to the negative effects of unreasonable workload on employee health and work life quality, employees will assume that unreasonable workload is a negative treatment of direct supervisors toward them. Unreasonable workload, thus, creates the unalignment between workload assignment and other positive supervisory treatments of employees (e.g., trust). Due to this unalignment, the effects of positive treatments (e.g., trust) may be weaker on employee well-being. In sum, trust in direct supervisors translates to more well-being among employees who have reasonable workload than among those with unreasonable workload. This moderating effect also suggests the moderated mediation effect of workload on the relationship between trust in direct supervisors and extra-role behavior through employee psychological well-being. From the above discussion, we propose:

**Hypothesis 6a.** Workload moderates the relationship between trust in direct supervisors and psychological well-being such that the impact of trust in direct supervisors will be stronger among employees who have reasonable workload than among those with unreasonable workload;

**Hypothesis 6b.** Workload moderates the indirect relationship between trust in direct supervisors and extra-role behavior such that the indirect relationship will be stronger among employees who have reasonable workload than among those with unreasonable workload (moderated mediation).

On the other hand, the relationship among trust in senior leaders, workload, and employee well-being can be different. Senior leaders do not assign work directly to employees.
Thus, the alignment between trust in senior leaders and workload may have a different implication on employee behaviors. When workload is unreasonable, we would expect that the effect of trust in senior leaders is stronger as it is more needed in this case. As unreasonable workload weakens the effect of direct supervisors on employee well-being, employees will seek more distal support, like senior leaders, in order to maintain wellness at work. Trust in senior leaders, therefore, will have a stronger effect on employee psychological well-being as employees are in need of more distal support in this case. This explanation is consistent with the JD-R model which postulates that job resources have greater influence on employee well-being when job demands are high.

For those employees having reasonable workload, we would expect that the effect of trust in senior leaders is less salient. This is because when having reasonable workload, employees can easily obtain psychological well-being and they are more likely to be affected by proximal support like trust in direct supervisors. Thus, more resources from distal actors, like leaders, will be less important to their well-being. In sum, the effect of trust in senior leaders will be weaker among employees who have reasonable workload than among those with unreasonable workload. This moderating effect also suggests the moderated mediation effect of workload on the relationship between trust in senior leaders and extra-role behavior through employee psychological well-being. Thus, we hypothesize:

**Hypothesis 7a.** Workload moderates the relationship between trust in senior leaders and psychological well-being such that the positive impact of trust in senior leaders is weaker among employees who have reasonable workload than among those with unreasonable workload;
**Hypothesis 7b.** Workload moderates the indirect relationship between trust in senior leaders and extra-role behavior such that the positive indirect relationship is weaker among employees who have reasonable workload than among those with unreasonable workload (moderated mediation).

**Figure 1:** Hypothetical model

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**Method**

**Data**

We used the 2019 Federal Employee Viewpoint Survey (FEVS) to test our hypothesized model. The FEVS measures United States (US) federal employee perceptions of their agencies, their managers, and their work experiences. FEVS 2019 was conducted in May and June 2019. Survey invitations were sent to all 1,443,152 US federal employees. 615,395 employees responded, yielding a response rate of 42.6%. Because this study focuses on employee trust on senior leaders and direct supervisors, we only took the respondents who have positions under supervisors (including non-supervisors and team leaders). The sample, thus, involved 433,373
observations of non-supervisor and team leader employees. Due to using listwise deletion to treat missing data on some variables, the final sample size dropped to 368,445 observations. The final sample included 46% female employees, 70% employees who have a bachelor’s degree or higher, and 54% employees who have stayed in their organization more than ten years.

Table 1. Sample characteristics

<table>
<thead>
<tr>
<th>Demographic characteristics</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td>Female</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td>Bachelor’s degree or higher</td>
</tr>
<tr>
<td><strong>Tenure</strong></td>
<td>More than 10 years</td>
</tr>
<tr>
<td><strong>Total number of employees (N)</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Variables**

Trust in senior leaders (or direct supervisor) refers to “a psychological state of willingness to accept vulnerability based on positive expectations of leaders [or supervisors] that derive in part from trustworthiness perceptions” (Fulmer & Ostroff, 2017b, p.2). Accordingly, trust in senior leaders was measured by using a three-item scale. A sample item is “I have a high level of respect for my organization's senior leaders.” Similarly, trust in direct supervisors was measured by using a three-item scale. A sample item is “I have trust and confidence in my supervisor.”

Psychological well-being refers to the “positive affective states associated with happiness and meaningfulness at work” (Avey et al., 2012, p. 25). It was measured by three items. A sample item is “The work I do is important.” Extra-role behavior refers to employee behaviors that do more than what is required in their job. It was measured by using a two-item scale. A sample item is “I am constantly looking for ways to do my job better.” Reasonable workload measured employee perceptions of their workload. It was measured with one item: “My
workload is reasonable.” All items in the main variables were measured using a 5-point Likert-type scale (1 = strongly disagree, 5 = strongly agree).

Previous studies show that scales with a small number of items or even single-item measures often have acceptable properties and reliabilities (Bergkvist & Rossiter, 2007; Fuchs & Diamantopoulos, 2009). In addition, single-item scales may even be beneficial due to their “simplicity, brevity or ease of use, and global measurement” (Kwon & Trail, 2005, p.72). Public administration studies have commonly used scales with a small number of items to measure different theoretical constructs (e.g., Hassan, Wright, & Yukl, 2014; Ingrams, 2020; Meyer-Sahling & Mikkelsen, 2020).

We considered including three demographic control variables: gender, education, and tenure. However, since the correlations between these demographic variables and the outcome are very small (|r| < = .1), we did not include them as control variables. This approach is aligned with the current trend in organizational research methods that cautions against adding demographic control variables since they not only have very little meaning but also can distort the focal relationships (Becker et al., 2016; Bernerth & Aguinis, 2016; Carlson & Wu, 2012; Spector & Brannick, 2011). This method has been increasingly adopted in recent management studies (e.g., Caesens, Stinglhamber, Demoulin, De Wilde, 2017; Martinez, Sawyer, Thoroughgood, Ruggs, & Smith, 2017; Troester & Van Quaquebeke, 2020). In this study, we controlled for the paths from trust in senior leaders and trust in direct supervisors to extra-role behavior since we are interested in the indirect effects in the model.

**Analysis Strategy**

We first confirmed the validity and reliability of the latent variables in our model with the confirmatory factor analysis, composite reliability, and average variance extracted. After that, we
tested the hypotheses using structural equation modeling as the main analysis method. Specifically, as our model has a moderated mediation structure, we test our hypothesized model using latent moderated structural equations (LMS) following the procedure suggested by Cheung & Lau (2015). LMS has proved to be more accurate at estimating parameters compared to the regression method with observed variables (Cheung & Lau, 2015). Because LMS does not offer model fit indexes, Cheung & Lau (2015) suggested testing the structural model without the interaction first to see whether the model has a good fit with the data. After that, LMS with the interaction variables was estimated to examine the effects. The measurement model and the hypothesized model were tested using MPLUS 8.2.

Results

Validity and Reliability of the latent constructs

We ran confirmatory factor analysis on the four latent variables to test the convergent validity and discriminant validity of the measures. The measurement model had good fit to the data with $\chi^2 = 21863.594$ (P = 0.000), df= 38, RMSEA = 0.039 (90% CI [0.039 - 0.040]) and CFI = 0.982, TLI = 0.974, SRMR = 0.030. In addition, all standardized factor loadings were significant and larger than .85 (see Appendix). These results confirmed the validity of the latent constructs.

In addition, we estimated the reliability of the latent constructs by calculating the composite construct reliability coefficients (CR) and average variance extracted (AVE) (Table 2). CCR ranged from .788 to .933, exceeding the acceptable cutoff value of 0.70 recommended by Bagozzi & Yi (1988). In addition, calculated AVE ranged from 0.595 to 0.823, higher than the recommended value of 0.50 (Fornell & Larcker, 1981). Thus, results supported the reliability of the latent constructs in our model.
<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>SD</th>
<th>CR</th>
<th>AVE</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Trust in senior leaders</td>
<td>3.435</td>
<td>1.103</td>
<td>.916</td>
<td>.785</td>
<td>[.886]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Trust in direct supervisors</td>
<td>4.109</td>
<td>1.013</td>
<td>.933</td>
<td>.823</td>
<td>.532*** (.002)</td>
<td>[.907]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Psychological well-being</td>
<td>4.127</td>
<td>.788</td>
<td>.814</td>
<td>.595</td>
<td>.481*** (.002)</td>
<td>.565*** (.002)</td>
<td>[.772]</td>
<td></td>
</tr>
<tr>
<td>4. Extra-role behavior</td>
<td>4.474</td>
<td>.623</td>
<td>.788</td>
<td>.650</td>
<td>.329*** (.002)</td>
<td>.386*** (.002)</td>
<td>.670*** (.002)</td>
<td>[.806]</td>
</tr>
<tr>
<td>5. Reasonable workload</td>
<td>3.450</td>
<td>1.170</td>
<td></td>
<td></td>
<td>.357*** (.002)</td>
<td>.446*** (.002)</td>
<td>.398*** (.002)</td>
<td>.256*** (.002)</td>
</tr>
</tbody>
</table>

Note. CR = Composite reliability. AVE = Average variance extracted. The square root of the average variance extracted reported in square brackets. Unstandardized correlations reported. Standard errors are exhibited in parentheses. *p < .05; **p < .01; ***p < .001
Hypothesis testing

We followed suggestions of Cheung & Lau (2015) to test our hypotheses using LMS. Because LMS does not offer model fit indexes, we first ran the structural model without the interactions to see whether the model fit the data well. This model had a good fit to data with $\chi^2 = 40250.544$ (p = 0.000), df = 79, RMSEA = 0.037 (90% CI [0.037 - 0.037]), CFI = 0.974, TLI = 0.967, and SRMR = 0.034. Thus, they signaled a good fit of our LMS model and we could continue to test the LMS model.

Next, we estimated LMS by adding the interaction variables to the model in the first step. Table 3 and Table 4 present the results of this model.

Table 3. Direct, indirect, and interactional effects of the moderated mediation model

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Description of paths</th>
<th>Path coefficients (Unstandardized)</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct effects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H1</td>
<td>Trust in senior leaders ↔ Trust in direct supervisors</td>
<td>.532*** (.002)</td>
<td>Supported</td>
</tr>
<tr>
<td>H2a</td>
<td>Trust in senior leaders → Psychological well-being</td>
<td>.355*** (.007)</td>
<td>Supported</td>
</tr>
<tr>
<td>H2b</td>
<td>Trust in direct supervisors → Psychological well-being</td>
<td>.207*** (.009)</td>
<td>Supported</td>
</tr>
<tr>
<td>H3</td>
<td>Psychological well-being → Extra-role behavior</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trust in senior leaders → Extra-role behavior</td>
<td>.004** (.001)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trust in direct supervisors → Extra-role behavior</td>
<td>.004* (.002)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reasonable workload → Psychological well-being</td>
<td>.115*** (.002)</td>
<td></td>
</tr>
<tr>
<td>Indirect effects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H4a</td>
<td>Trust in senior leaders → Psychological well-being</td>
<td>.136*** (.003)</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>→ Extra-role behavior</td>
<td>[95% CI = [.131; .141]]</td>
<td></td>
</tr>
<tr>
<td>H4b</td>
<td>Trust in direct supervisors → Psychological well-being</td>
<td>.079*** (.004)</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>→ Extra-role behavior</td>
<td>[95% CI = [.073; .085]]</td>
<td></td>
</tr>
</tbody>
</table>

Interactional effects

129
H1 posited that trust in senior leaders and trust in direct supervisors were positively correlated. Correlation between trust in senior leaders and trust in direct supervisors was positive and significant ($r = .532; p < .001$) (Table 3); thus, H1 was supported. H2a and H2b stated that trust in senior leaders and trust in direct supervisors were positively related to employee psychological well-being. The results (Table 3) showed that trust in senior leaders was positively and significantly related to psychological well-being ($\beta = .355; p < .001$) and trust in direct supervisors was positively and significantly related to psychological well-being ($\beta = .207; p < .001$).
Thus, H2a and H2b were supported. Furthermore, H3 was supported as employee psychological well-being was positively and significantly related to employee extra-role behavior ($\beta = .383; p < .001$) (Table 3).

H4a and H4b posited that employee psychological well-being mediated the relationship between trust in senior leaders and employee extra-role behavior and mediated the relationship between trust in direct supervisors and employee extra-role behavior. The results (Table 3) showed that trust in senior leaders and trust in direct supervisors were positively and significantly related to employee well-being (H2a and H2b were supported) and psychological well-being was positively related to extra-role behavior (H3 was supported). In addition, the indirect paths from trust in senior leaders and trust in direct supervisors to extra-role behavior through psychological well-being were positive and statistically significant ($\beta = .136; p < .001$; and $\beta = .079; p < .001$ respectively) (Table 3). Thus, employee psychological well-being mediated the two relationships: (i) trust in senior leaders and employee extra-role behavior; and (ii) trust in direct supervisors and employee extra-role behavior; or H4a and H4b were supported.

H5 hypothesized that trust in senior leaders and trust in direct supervisors have a positive interactive effect on psychological well-being. This hypothesis was supported since the regression coefficient of the interaction (trust in senior leaders \(\times\) trust in direct supervisors) is positive and statically significant ($\beta = .008; p < .01$) (Table 3).

H6a stated that reasonable workload positively moderated the relationship between trust in direct supervisors and psychological well-being. This hypothesis was supported as the regression coefficient of the interaction (trust in direct supervisors \(\times\) reasonable workload) is positive and statically significant ($\beta = .016; p < .001$) (Table 3). H6b proposed that reasonable workload positively moderated the indirect relationship between trust in direct supervisors and
extra-role behavior. To test this hypothesis, we calculated the indirect effect at different levels of reasonable workload (Table 4 and Figure 2). The results showed that positive indirect effect of trust in direct supervisors on employee extra-role behavior increased as the level of reasonable workload increased. Thus, H6b was supported.

H7a posited that reasonable workload negatively moderated the relationship between trust in senior leaders and psychological well-being. The results (Table 3) showed that the regression coefficient of the interaction between reasonable workload and trust in senior leaders was negative and statistically significant (β = -.009; p < .001), therefore, H7a was supported.

H7b proposed that reasonable workload negatively moderated the indirect relationship between trust in senior leaders and extra-role behavior. As Table 4 and Figure 3 show, the positive indirect effect of trust in senior leaders on employee extra-role behavior diminished as reasonable workload increased. H7b was therefore empirically supported.
Figure 2: Indirect effects of trust in direct supervisors on employee extra-role behavior via psychological well-being at various levels of reasonable workload.

Figure 3: Indirect effects of trust in senior leaders on employee extra-role behavior via psychological well-being at various levels of reasonable workload
Discussion

Theoretical implications

Building on the trickle-up and trickle-down effects literature and the JD-R model, we hypothesized and tested whether and how employee trust in senior leaders and employee trust in direct supervisors relate to each other and influence employee extra-role behavior. Findings support our hypothesis that employee trust in senior leaders is strongly correlated with employee trust in direct supervisors, meaning trust in a management referent can be the cause of trust in another management referent. In addition, trust in senior leaders and trust in direct supervisors positively and indirectly affect employee extra-role behavior through psychological well-being. Additionally, trust in senior leaders and trust in supervisors have positive interactive effects on psychological well-being. Furthermore, workload has opposite moderating effects on the indirect effect of trust in direct supervisors and trust in senior leaders on employee extra-role behavior. Specifically, among employees with unreasonable workload, the positive indirect effect of trust in direct supervisors on extra-role behavior is weaker, while the positive indirect effect of trust in senior leaders on extra-role behavior is stronger.

Our study has made several meaningful contributions to the public administration and public human resource management literature. First, we widen the literature about the predictive role of trust in public organizations. Previous studies mostly look at the antecedents of trust based on the quality of the dyad relationship between the leaders or supervisors and employees (e.g., Lu, 2014; Miao et al., 2014; Simha & Stachowicz-Stanusch, 2015). Building on the trickle effect models, we have shown that employee trust in senior leaders can be a cause for employee trust in supervisors and vice versa. Understanding trust in one management level, thus, can assist our understanding of employee trust in different management levels in the public workplace.
Second, our study highlights the importance of matching trust and referents in public administration literature. Public administration scholars rarely study trust in different levels of management together to see their different effects on employees (e.g., Asencio, 2016; Kim & Holzer, 2016; Miao et al., 2014). Our study has shown that public organizations have different trust referents that influence employees differently due to their various roles in organizations. Senior leaders are in charge of macro-organizational policies while direct supervisors are more concerned with task allocation and supervision. Thus, by studying trust in senior leaders and trust in direct supervisors at the same time, we have shown the complementary nature of trust in senior leaders and trust in direct supervisors in affecting employee psychological well-being. Additionally, we found that trust in senior leaders and trust in direct supervisors had opposite interactions with workload on affecting employee psychological well-being and extra-role behavior.

Third, to the best of our knowledge, we are the first study in public administration to bring psychological well-being and workload as underlying mechanisms in the relationship between trust in management and extra-role behavior. Understanding of these relationships are important for finding appropriate strategies to foster employee extra-role behavior in the public workplace. In addition, by revealing the mediating role of psychological well-being on the relationship between trust and extra-role behavior, we confirm the notion that a happy worker is a productive worker (Sirgy, Efraty, Siegel, & Lee, 2001) in the public workplace (Johari, Shamsudin, Yeaw, Yahya, & Adnan, 2019).

Fourth, we expand the JD-R model (Bakker, 2015) and its understanding in the public HRM knowledge base. We contribute to the JD-R model (Bakker, 2015) by further specifying job resources (i.e., trust in senior leaders and trust in direct supervisors) and job demands (i.e.,
unreasonable workload). We explore a specific form of high workload: unreasonable workload (i.e., a high and unfair workload). The JD-R model focuses on a generic “high workload,” which is the amount of work employees have to do in a specific duration (Van Veldhoven, De Jonge, Broersen, Kompier, & Meijman, 2002). This “high workload,” thus, does not imply the subjective nature of workload (i.e., employee perception about their workload based on the comparative nature between job demands and job resources). This limits its effectiveness in explaining why high workload is a challenge demand (i.e., it costs effort but potentially promotes personal growth) in some research but a hindrance demand (i.e., it prevents employees from achieving goals) in other studies (Bakker & Demerouti, 2017). By exploring the concept of unreasonable workload, we have responded to the call to “uncover the conditions under which job demands act as hindrances versus challenges” (Bakker & Demerouti, 2017b, p. 278).

In addition, we have studied the relationship between different types of job resources (i.e., trust in senior leaders and trust in direct supervisors) to see the interdependence of job resources in public organizations. We also explore a new interaction effect between job resources and job demands. The JD-R model generally hypothesizes that job resources affect employee well-being and performance stronger at high workload. By studying how workload moderates the effect of trust in two different management levels, we show that the relationship between job demands and job resources is more complicated. While the moderating effect of workload on trust in senior leaders, employee well-being, and extra-role behavior is consistent with the JD-R model such that the effect of trust in senior leaders is stronger at unreasonable workload, trust in direct supervisors is not. Trust in direct supervisors, in fact, influences employee psychological well-being and extra-role behavior less strongly under unreasonable workload. Our study, therefore, has shown that job resources and demands can interact with each other and affect
employees in different ways. Our approach helps understand why public administration research sometimes find the interaction between job demands and job resources inconsistent with the JD-R model (e.g. Shim et al., 2019).

**Practical implications**

Our findings offer several practical implications for public organizations. First, as trust in senior leaders and trust in direct supervisors can influence and interact with each other to foster employee well-being and extra-role behavior, public organizations should build trust in all hierarchical levels to foster organizational effectiveness. It is crucial that senior leaders focus on their attributes and behaviors (e.g., benevolence, integrity, and ability) to build employee trust in themselves, and thus, enhance employee trust in supervisors. Additionally, public organizations should focus on appropriate leadership training for direct supervisors so that they can develop behaviors that strengthen employee trust in them and eventually foster employee trust in senior leaders.

Second, it is vital that public organizations care about their employees’ psychological well-being because of its importance for organizational effectiveness. This can be done by providing more resources at work such as support from management, good working conditions, autonomy, and clear job goals. Caring for employee well-being is not an end for organizational effectiveness, it is also an ethical act that can improve employee health and work life quality.

Third, our study results also have implications for assigning workload for employees. As results show that unreasonable workload reduces the effect of trust in direct supervisors on employee well-being and extra-role behavior, senior leaders should encourage supervisors to assign employees reasonable workload. This does not merely mean assigning appropriate task.
demands, but also offering enough resources (e.g., good physical working conditions) for employees to complete their tasks and awarding their efforts fairly. From that, the relationship between direct supervisors and employees can develop, and consequently the effects of trust on employee well-being and extra-role behavior can be strengthened.

**Limitations and future research directions**

There are some limitations in our study that should be considered in interpreting the results. First, as our study used data from one source (employee self-reported), it might be affected by common method variance (CMV). However, CMV may not be a serious problem as there was evidence that CMV was not large in our study since: (a) the responses were confidential, making respondents less likely to answer based on social preference; and (b) the latent constructs were validated theoretically and empirically (Conway & Lance, 2010). Previous studies have shown that a low or moderate level of CMV does not overstate correlation estimations (Fuller, Simmering, Atinc, Atinc, & Babin, 2016). Furthermore, the significant interactive effects in our study indicate that CMV was not strong enough to deflate these effects (Siemsen, Roth, & Oliveira, 2010). Second, causal relationships cannot be concluded as our study used cross-sectional data. Third, research variables such as extra-role behavior may be better evaluated by objective measures than employee perceptions in this research. Fourth, the data for this study from FEVS 2019 was not designed for academic research purposes. Thus, the factors used to measure the independent and dependent variables were not all available and perfect in the survey.

Our study opens several fruitful directions for future public administration research. First, besides the trickle effects of trust in senior leaders and direct supervisors on employee behaviors, future research could study the trickle effects of trust to middle-level managers and entire public
organizations. Second, other than trust in management, future research can look at other types of 
job resources that can foster employee well-being at work to harvest the positive outcome of this 
variable in the public workplace. Lastly, as our findings show workload serves opposite 
moderating roles in the effect of trust in different management levels and employee extra-role 
behavior, future research can expand the JD-R model by looking at more types of job demands 
and job resources that have different interaction relationships as proposed by the JD – R model.
References


Ingrams, A. (2020). Organizational citizenship behavior in the public and private sectors: A
multilevel test of public service motivation and traditional antecedents. *Review of Public Personnel Administration, 40*(2), 222-244.


### Appendix

<table>
<thead>
<tr>
<th>Variables</th>
<th>Items</th>
<th>CFA Factor loadings (standardized)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trust in senior leaders</strong></td>
<td>My organization's senior leaders maintain high standards of honesty and integrity.</td>
<td>0.855</td>
</tr>
<tr>
<td></td>
<td>I have a high level of respect for my organization's senior leaders.</td>
<td>0.966</td>
</tr>
<tr>
<td></td>
<td>How satisfied are you with the policies and practices of your senior leaders?</td>
<td>0.898</td>
</tr>
<tr>
<td><strong>Trust in direct supervisors</strong></td>
<td>I have trust and confidence in my supervisor.</td>
<td>0.881</td>
</tr>
<tr>
<td></td>
<td>My supervisor treats me with respect.</td>
<td>0.898</td>
</tr>
<tr>
<td></td>
<td>Overall, how good a job do you feel is being done by your immediate supervisors?</td>
<td>0.878</td>
</tr>
<tr>
<td><strong>Psychological Well-being</strong></td>
<td>My work gives me a feeling of personal accomplishment.</td>
<td>0.842</td>
</tr>
<tr>
<td></td>
<td>I like the kind of work I do.</td>
<td>0.794</td>
</tr>
<tr>
<td></td>
<td>The work I do is important.</td>
<td>0.668</td>
</tr>
<tr>
<td><strong>Extra-role behavior</strong></td>
<td>When needed I am willing to put in the extra effort to get a job done.</td>
<td>0.799</td>
</tr>
<tr>
<td></td>
<td>I am constantly looking for ways to do my job better.</td>
<td>0.813</td>
</tr>
<tr>
<td><strong>Reasonable workload</strong></td>
<td>My workload is reasonable.</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 5. Conclusion

Public employees are the core assets of public organizations responsible for carrying out the work that contributes to public values. As such, learning how to enhance employees’ positive attitudes and behaviors is important for public organizations working to achieve public values and purposes. Drawing on ideas from behavioral public administration (Grimmelikhuijsen, Jilke, Olsen, & Tummers, 2017), this dissertation examines the influence of human resource management (HRM) on public employees’ attitudes and behaviors in the federal government. Three empirical studies are included, examining pressing personnel management issues in US federal agencies: whether and how public managers should pay attention to generational differences, how supervisors can design reasonable workloads to enhance employee job satisfaction, and how different levels of management are related to each other and influence employees. Together, these three studies enhance our understanding about the capacity of effective HRM strategies to enhance public sector employees’ attitudes and behaviors in new contextual challenges, thereby enriching the public administration literature from the lens of behavioral public administration theories.

A brief summary of the findings of these studies is as follows. The first study, presented in Chapter 2, draws from generational theory (Dencker, Joshi, & Martocchio, 2008) to propose and examine the differences between Millennials and Generation Xers working in the federal government. This study uses time-lag data from the 2011 FEVS and 2004 FHCS and hierarchical regression analyses to examine the generational effect while controlling for the age effect. It finds that there are no substantial differences between the two generations at a similar stage of their careers in terms of their affective commitment levels and how job factors influence their attitudes.
The second study of this dissertation, in Chapter 3, draws on the conservation of resources (COR) theory (Hobfoll, 1988; Hobfoll, Halbesleben, Neveu, & Westman, 2018) to propose and test how supervisor support can enhance employees’ perception of reasonable workload and job satisfaction. This study uses the structural equation modelling method with data from the 2019 FEVS to test its hypothesized model. It finds that supervisor support can act as a job resource to enhance co-worker support and perceived reasonable workload to foster employees’ job satisfaction. In addition, it also confirms the moderating effect of tangible job resources in enhancing the effectiveness of the effects of supervisor support and co-worker support on employees’ perceived reasonable workload and job satisfaction.

The dissertation’s third study, presented in Chapter 4, builds on trickle effects models (Wo, Schminke, & Ambrose, 2019) and the job demands-resources (JD-R) model (Bakker & Demerouti, 2008, 2017) to investigate how trust in different managerial levels influence each other to enhance employees’ extra-role behavior. Using the structural equation modelling method with data from the 2019 FEVS, this study finds that trust in senior leaders and direct supervisors can affect, as well as interact with each other, to influence employees’ psychological well-being and then extra-role behavior. Moreover, reasonable workload is found to differently moderate the effects of trust in leaders and supervisors on psychological well-being and extra-role behaviors.

This dissertation contributes meaningfully to the public administration theory and practice in several ways. First, by adopting the lens of behavioral public administration to use psychology theories to study public sector employees’ attitudes and behavior, this dissertation complements and expands on other public administration approaches. In addition, it demonstrates the utility of psychology and behavioral approaches for scholarly public administration research. Furthermore, it enhances our understanding about public sector
employees’ attitudes and behaviors. For instance, the study in Chapter 2 sheds light on stereotypes about Millennials’ commitment at the public workplaces by applying the generational theory (Dencker, Joshi, & Martocchio, 2008). Moreover, the study in Chapter 3 sheds new light on how to enhance the perceptions of reasonable workload to enhance public employees’ job satisfaction, which has commonly been found to negate employees’ well-being and their organizations’ effectiveness (Bhui, Dinos, Galant-Miecznikowska, de Jongh, & Stansfeld, 2016; Hsieh, 2014; Shim, Park, & Eom, 2017). The study in Chapter 4 offers new perspective on trust in different managerial levels in organizations and its effects on employees’ well-being, which has been long neglected in the public administration literature. The findings of this study show the complexities of connections between different managerial levels within public organizations. Together, the three studies in this dissertation demonstrate and support the important role of behavioral public administration approach in the public administration literature, and further our understanding about human behaviors and attitudes in the public sector.

In practice, this dissertation aims to help to inform how public organizations can find strategies to effectively manage people in the public workplace and produce more public goods for society, as well as to enhance the well-being of their employees. For instance, results of the study in Chapter 2 help public administrators understand stereotypes about Millennials, despite permeating the society, are not necessarily true. As such, this study suggests public managers and other employees should not hold negative stereotypes about Millennials, and public organizations should not rely on generational stereotypes to design different managerial interventions for Millennials. This is because such interventions may do more harm than good for Millennials, as well as the organizations that employ them. Meanwhile, findings of the
second study in Chapter 3 help understand how to enhance perceptions of reasonable workload to enhance employees’ job satisfaction. This study shows that how employees perceive their workload is not only dependent on the amount of job demands, but also on the amount of job resources. As such, public organizations might endeavour to enhance social support at work (i.e., supervisor support and co-worker support) as well as provide sufficient job resources to foster employees’ perception of reasonable workload and then their job satisfaction. Furthermore, the third study, presented in Chapter 4, suggests public organizations should build trust in all hierarchical levels to foster organizational effectiveness, since they can influence as well as interact with each other to affect employees. It also suggests ways in which public organizations can care for their employees’ well-being, as well as design reasonable workloads to enhance employees’ extra-role behavior for organizational effectiveness.

By adopting the behavioral public administration approach, this dissertation also brings the public administration field closer to the general literature about human behaviors, as well as using the public administration context to contribute to psychology and behavioral sciences. More specifically, this dissertation helps refine and advance general psychology literature in several aspects. First, the study in Chapter 2 contributes to generation theory by testing it in the public sector where employees are commonly argued to have distinct work values and characteristics (Perry & Wise, 1990). This study does not find significant differences between Millennials and Generation Xers in the federal government, suggesting generation theory may not hold true among public sector employees. Moreover, the second study sheds light on the underlying mechanism underlying the relationship between supervisor support and job satisfaction, which has not been fully understood. By introducing the mediating role of co-worker support and reasonable workload and moderating role of tangible job resources, this
study also contributes to the relevant literature regarding these variables. The third study expanded on the JD-R model (Bakker & Demerouti, 2008, 2017) and its understanding in the public HRM. Specifically, it contributes to the JD-R model (Bakker & Demerouti, 2008, 2017) by further specifying job resources (i.e., trust in senior leaders and trust in direct supervisors) and job demands (i.e., unreasonable workload). This study also explored a new interaction effect between job resources and job demands rather than what the JD-R model generally hypothesizes.

Several important limitations of the research strategy undertaken in this dissertation must be acknowledged. First, as the studies in this dissertation use cross-sectional data to test hypotheses, they do not claim to make definitive causal inferences (Spector, 2019). Rather, this dissertation is intended to contribute to community of inquiry using different methods to explore employees’ attitudes and behaviors. The large-n quantitative analyses presented in the three studies are intended to complement other approaches offering richer detail and tracing causal processes. Future studies may employ more robust designs, such as longitudinal designs, or experiments, approaches increasingly used by behavioral public administration scholars (Hassan & Wright, 2020).

A second important limitation stems from the risk of common method variance (CMV) as this study only uses self-reported data from a single employee survey (Spector, 2019). CMV is “systematic error variance shared among variables measured with and introduced as a function of the same method and/or source” (Richardson, Simmering, & Sturman, 2009, p. 763). This can distort (either inflate or deflated) the estimations in the studies conducted (Jakobsen & Jensen, 2015). In this dissertation, several steps were taken to reduce the risk that CMV will bias the estimates (Fuller, Simmering, Atinc, Atinc, & Babin, 2016). They include using the survey that
was conducted anonymously to avoid social preference issues and validating the latent constructs theoretically and empirically (Conway & Lance, 2010). Future research might follow methods suggested by Podsakoff, MacKenzie, and Podsakoff (2012) in the research design process to avoid the CMV issue, such as using outcome and predictor variables from different sources or having separation between outcomes and predictors.

A third important limitation of this dissertation is measurement. Specifically, the independent and dependent variables are subject to measurement errors, as the three studies in this dissertation use the FEVS and/or FHCS surveys, which were not designed for academic research purposes. For instance, in the third study of this dissertation presented in Chapter 4, extra-role behavior is measured by reported scores of employees’ surveys. This measure reflects reported and/or intended behaviors (i.e., intention and/or willingness) rather than actual behaviors of employees (Somers, 2018). Although prior conceptual and empirical work has argued for and found much evidence for the substantial relationship between intentions and behaviors, there are several other factors that can make this relationship varies across cases and circumstances (Ajzen, 2011). For instance, Ajien (2011) argues that “lack of actual control over a behaviour will tend to reduce the predictive validity of intentions” (p.1115). As such, measuring behaviors by using the intention proxy will lead to substantial measurement errors in several cases. This is a common limitation of research conducted by public administration scholars as well as psychology and management scholars and the studies in this dissertation are not an exception (George & Pandey, 2017; Podsakoff et al., 2012). The research strategies undertaken here must also be complemented by qualitative and ethnographic approaches better suited for providing richer understandings about people’s behaviors.
Another limitation of this dissertation’s measurement is that several single-item measures were used in the three studies. Due to using secondary data from FEVS and/or FHCS surveys with inherent limitations, the appropriate survey items to measure some variables are limited. Those variables in this dissertation are better measured with multiple-item scales to enhance its validity and reliability. Despite this limitation, many scholars (e.g., Bergkvist & Rossiter, 2007; Fuchs & Diamantopoulos, 2009; Kwon & Trail, 2005) have supported for the role of single-item measures and shown that these measures may not significantly reduce the reliability of the variables.

In sum, using secondary data from FEVS and FHCS surveys may limit the measurement quality of the studies in this dissertation (Fernandez, Resh, Moldogaziev, & Oberfield, 2015; Somers, 2018). The author has taken several measures to deal with the inherent limitations of the data such as using rigorous statistical tests of measurement validity (e.g., CFA and Cronbach’s alpha) (Resh, Moldogaziev, Fernandez, & Leslie, 2021; Somers, 2018). To enhance the measurement quality, further research should rely on validated measurement scales to deal with this matter. Despite not being designed for academic research, FEVS and FHCS are still advantageous data sources to study public sector employees’ attitudes and behaviors (Fernandez et al., 2015). Responses to the FEVS and FHCS surveys are anonymous to avoid social preference issues. Additionally, data from the FEVS and FHCS include a large number of well-designed research items and have been one of the largest public sector survey data offered in several years in the world. As such, it can offer helpful insights into personnel process and management within the federal government in particular and public sector in general, meaningfully complementing other data sources and designs.
A fourth limitation of the findings presented in this dissertation stems from the omission of control variables from statistical models presented in Chapters 3 and 4. Due to structural equation models (SEM) model identification issues, control variables are omitted from the estimated models. As such, alternative explanations were excluded in those studies when the hypothesized models were tested. While the absence of control variables creates important limitations, the SEM approach nonetheless has other advantages (Resh et al., 2021). First, SEM can be used to simultaneously test multiple paths, which is more effective and appropriate for the studies in Chapters 3 and 4 of this dissertation. Furthermore, using SEM to test moderation effects can address the effects of measurement errors, thus increasing the reliability of the results over regression or ANOVA (Edwards, 2009). In order to deal with endogenous variables, future research may adopt validated scales constructed using an expanded number of survey items. This can help increase the degrees of freedom of SEM and avoid under-identified issues when adding additional control variables. However, it is worth noting that omitting a range of demographic control variables in the studies presented in Chapters 3 and 4 may not substantially affect the findings. Many of these variables have very small correlations with the main dependent variables (≤.1). Consequently, some scholars of organizational research methods caution against adding demographic control variables since they have little meaning and may distort the focal relationships (Becker et al., 2016; Bernerth & Aguinis, 2016; Carlson & Wu, 2012).

Lastly, moderating effect sizes in the studies in Chapters 3 and 4, although statistically significant, are small. As such, it may limit the theoretical and practical implication values regarding moderating effects in these studies. One caveat is that the small effects may result from the research designs. These studies used cross-sectional data from one source which may cause common method variance, and thereby deflating the moderating effect sizes (Podsakoff et al.,
2012). Future research should adopt improved designs, such as using multiple sources data and/or have temporal separation between time collected these variables to see whether this can help enhance the sizes this moderating effects. Furthermore, the small moderating effect sizes in these studies open opportunities for future research to look at other contextual or individual factors that can strengthen or weaken the relationships proposed in the two studies.

To conclude, this dissertation demonstrates an effort to apply behavioral public administration to further our understanding about public sector HRM and employees’ positive attitudes and behaviors. Results of the three studies in this dissertation also suggest appropriate HRM practices to effectively foster employee positive attitudes and behaviors given new contextual challenges. It responds to the call to bring more psychology and behavioral sciences literature into public administration to shed light on the micro level in the public sector. At the same time, this dissertation brings public administration context to contribute to the behavioral sciences literature. Finally, the dissertation opens new fruitful directions and possibilities for further research to take up the challenge to advance public administration literature and practices.
References


