

HOW CAN BUREAUCRATIC REPRESENTATION AND DIVERISTY CONTRIBUTE
TO PUBLIC SERVICE? FOUR ESSAYS

by

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ABSTRACT OF THE DISSERTATION

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Dr. Norma Riccucci

Bureaucratic representation and diversity are important to achieving social equity in public service delivery. In order to better understand the two important dimensions, this dissertation uses four essays to explore four research questions that connect inquiries of representative bureaucracy, diversity management, and public management in general: (1) What are the contextual factors that determine the impacts of bureaucratic representation on public organizational performance? (2) How to make best use of public workforce diversity to benefit public organizational performance? (3) Does executive leader's partisanship affect public bureaucratic representation in American state governments? (4) How does a labor shortage in public workforces affect the relationship between representative bureaucracy and coproduction?

Chapter 2 and Chapter 3 conducted meta-analysis to closely examine the conditions under which bureaucratic representation and workforce diversity affect public organizational performance. The empirical result shows that the effects of representative bureaucracy on public organizational performance are positive in general, but that these effects are moderated by several contextual factors. Similarly, diversity may have mixed

effects on public organizational performance since diversity can generate inclusivity and intergroup conflicts in the workforce at the same time.

Chapter 4 examined the impacts of executive leader's partisanship on bureaucratic representation. Using data covering 50 American states from 2005 to 2021, it constructed a regression discontinuity design to explore the causal impacts of governor's partisanship on bureaucratic representation. It found that executive leader's partisanship affected the bureaucratic representation of certain socially underrepresented groups in American states. And the causal relationship can be moderated by the specific institutional pressures.

Chapter 5 explored how labor shortage in governmental agencies can reshape the relationship between gender representation and citizenry coproduction in public service. It conducted a survey experiment in the context of domestic violence in the U.S. The empirical findings suggested that labor shortage can mitigate the positive effect of gender representation on citizen coproduction while such negative moderating effects vary under different conditions.

Overall, developing diversity and representation in public workforce along with making good use of them can be conditional and subject to specific institutional environments.

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Chapter 1

Introduction

1.1 Background

Bureaucratic representation and diversity management are two fundamental indicators to evaluate how diversity, equity, and inclusion (DEI) are achieved in and through the public sector. Bureaucratic representation refers to the extent to which bureaucrats of public organizations can serve their demographic counterparts in the general population. The theoretical framework of representative bureaucracy has evolved over time. Initially, the concept of representative bureaucracy was examined in terms of the descriptive representativeness of organizations—passive representation as the degree to which the demographics of public organizations reflected the demographics of the general population (Meier, 1993; Selden, 1997). Advancements in representative bureaucracy theory and research explored whether bureaucrats' social or demographic characteristics correspond with their values and policy decisions—active representation. This is achieved with a few assumptions: bureaucratic discretion, shared values from demographic backgrounds, and bureaucratic policy decisions consistent with their counterparts in the general population and maximizing the values shared with those demographic groups (See, e.g., Meier & Morton, 2015; Capers, 2018; Favero & Molina, 2018; Andrews & Miller, 2013). Symbolic representation further advanced the theoretical framework of representative bureaucracy by indicating that the social origins of bureaucrats can induce certain attitudes or behaviors on the part of citizens or clients without bureaucratic actions (See, e.g., Riccucci & Van Ryzin, 2017; Davis et al., 2011; Theobald & Haider-Markel,

2009).

While bureaucratic representation focuses on the representation of specific social identity groups (especially those with disadvantaged social status) within public organizations, diversity management pays special attention to the managerial efforts that shape the treatment of increasingly diversified public workforce. As noted, a good deal of research indicates that diversity in organizational composition can positively contribute to public organizational performance, in terms of, for example, responsiveness to the citizenry, governance capacity and accountability (see, e.g., Sabharwal, Levine, & D'Agostino, 2018; Choi & Rainey, 2010; Opstrup & Villadsen, 2015; Muchiri & Ayoko, 2013; Owens & Kukla-Acevedo, 2010; Shibeshi, 2012; Gazley et al. 2010). More recently, the research on diversity has focused on diversity, equity and inclusion (DEI), which points to the importance of managing diversity to ensure inclusiveness of diverse voices and to promote equity in the workplace (see, e.g., Guy & McCandless, 2020; 2012; Naff & Kellough, 2003). However, some research has pointed to the potential negative effects of diversity, particularly if it is not effectively managed (Sabharwal, 2014; Owens & Kukla-Acevedo, 2010; Miller & Triana, 2009).

Despite the fruitful literature on the benefits of bureaucratic representation and diversity management to the public service outcomes, there is a lack of generalization for the contextual determinants of such benefits. Compared with the private sector which attaches great importance to the cost-effectiveness or monetary value of organizational performance, public organizations pay much more attention to the quality of public service delivery (Walker & Andrews, 2015). Performance management in the public sector does focus on program effectiveness but it also considers process-related criteria which emanate

from traditional democratic values, such as due process, equity, integrity, and transparency (Moynihan et al. 2011). Since representation is one core element in democracy, bureaucratic representation within public organizations to some extent ensures that democratic processes of organizational performance are taken into account. Although the interaction between representative bureaucracy and public organizational performance has been extensively examined, the conditions under which bureaucratic representation affects organizational performance have lacked close scrutiny. Indeed, it may be that the effect of bureaucratic representation is highly situational or contextual (Andrews et al., 2014; Meier 2019; Park 2020; Wilkins and Williams 2008). Thus, it is imperative to examine how certain conditions or circumstances shape the impact of bureaucratic representation on organizational performance.

Similarly, diversity in the composition of public employees has contributed positively to the operations of public organizations, as suggested in studies of representative bureaucracy (e.g., Nicholson-Crotty et al., 2017; Meier, & Nicholson-Crotty, 2006; Andrews et. al., 2005; Ding et al., 2021), organizational networking capability (e.g., Owens & Kukla-Acevedo, 2010; Jackson & Joshi, 2004), organizational accountability (e.g., Gazley et al., 2010; Tomlinson & Schwabenland, 2010), innovations (e.g., Muchiri & Ayoko, 2013; Choi et al., 2018) and organizational inclusion (Sabharwal, 2014; Andrews et al., 2014). However, under different circumstances, some studies have found that diversity in public workforces may compromise public organizational outcomes, as evidenced by failed agreements on decision-making (e.g., Jehn et al., 1999), communication costs (e.g., Owens & Kukla-Acevedo, 2010), and low organizational commitments from marginalized identity subgroups (Ritz & Alfes, 2017; Moon, 2018).

The highly context-specific diversity effects on public organizational outcomes implies that it is necessary to conduct a systematic analysis on the contextual constructs shaping the configurations of diversity effects on performance.

One important group of understudied contextual factors are those determine the establishment of bureaucratic representation and diversity in the public workforce, which serves as the demographic basis for the two mechanisms of DEI in the public service. Employment in the civil service tends to be merited-based at most circumstances so that the descriptive representation of the socially underrepresented groups in public bureaucracy is directly subject to the standardized examination which seems apolitical in procedure. However, the design and operation of such selection mechanism in the civil service can be reshaped by the politically elected leadership of the entire executive branch and their appointed heads of the executive agencies in most democratic countries (See, e.g., Aucoin, 2012; Dahlström et al., 2011; Peters & Pierre, 2004). Moreover, the executive leadership may have different perception of the underrepresented social groups in the public service delivery because of their different in ideological beliefs from partisanships (See, e.g., Alm & Rogers 2011; Cahan & Potrafke 2017). They may ideologically shape their policy designs towards the DEI issues among which managing public personnel is an indispensable component, which eventually affect representative bureaucracy.

Apart from the factors that determine the generation of representation and diversity in the public bureaucracy at the supply side, the conditions that enable the presence of descriptive representation and diversity in the public bureaucracy to motivate the coproduction behavior of citizens as client of public service at the demand side also lack consideration. Labor shortage is the one imperative at time. Public sector is threatened by

the unpredictable loss of workforce because of the COVID-19 pandemic which might still last for years (Pandya & Saha, 2021; White et., 2021). Literature on symbolic representation suggests that gender representation in the public agencies may motivate people to coproduce in the public service in which females tend to be the victims, underrepresented, or disadvantaged (Headley et al., 2021; Riccucci & Van Ryzin, 2017). However, it is unknown whether such benefit still exists if the public agencies lack available workforce to deliver public service.

Thus, in order to explore how representation and diversity in public bureaucracies can contribute to public service, this dissertation explores four research questions that connect inquiries of representative bureaucracy, diversity management, and public management in general: (1) What are the contextual factors that amplify the positive effects of bureaucratic representation, by race and ethnicity, on public organizational performance? (2) How to make best use of public workforce diversity by mitigating its negative impacts while promoting its positive effects on public organizational performance? (3) Does political ideology of executive leadership affect public bureaucratic representation in American state governments? (4) How does a labor shortage in public workforces affect the relationship between representative bureaucracy and coproduction?

1.2 Outline of Dissertation

In order to empirically test the moderating effects of the hypothesized conditions of bureaucratic representation, The first essay (Chapter 2)¹ conducted a meta-analysis on all eligible quantitative studies of representative bureaucracy and public organizational

¹ This essay has been published at *Public Administration Review* (Ding et al., 2021).

performance. Average effect sizes comparison across studies confirmed the generally positive impacts of bureaucratic representation on public organizational performance. Meta-regression results demonstrated positive moderating effects of the hypothesized constructs of bureaucratic representation.

The second essay (Chapter 3)² addresses the second question, which indicates another fundamental approach to achieve equity along with efficiency and effectiveness in the public service. It also examines the potential positive effects of diversity in public workforces. By introducing a categorization-elaboration model (CEM), it assumes that the dual diversity mechanisms of social categorization and information elaboration shape diversity effects on public organizational performance (van Knippenberg, De Dreu & Homan, 2004). Social categorization refers to the distinction of people's propensities to categorize themselves as part of one's own in-group ("us") versus out-group ("them") along demographic lines such as race, ethnicity or gender, which can generate intergroup bias and value conflict. Information elaboration describes the process of exchange, discussion, and integration of task-relevant information and perspectives through communication, which drives inclusion and innovation.

Using meta-analysis, such a speculated complex process can be manifested by the quantitative generalization of effect sizes after reviewing the diversity literature in public administration and political science. Through social categorization, subgroups with dominance in physical presence and stereotype consensus may generate negative diversity effects on performance. From information elaboration, the series of diversity management designs, including diversity-friendly leadership, culture or climate, training programs, and

² This essay has been published at *Public Administration* (Ding & Riccucci., 2022).

organizational or procedural justice policies, are expected to improve diversity-performance relationships. This research shows that effectively managing diversity in public organizations has a positive impact on performance.

The third essay (Chapter 4) attempts to answer the third question by examining the interaction between partisan politics and representation in public bureaucracies in American state governments. It argues that political ideology of executive leadership may affect bureaucratic representation of specific racial and ethnic groups in American states. The ideological difference in policy positions between the two national parties have been well illustrated, where Democrats are more liberal than Republicans (Feinstein and Schickler 2008; Gerring, 2001). A supportive, diverse climate is found to increase the attractiveness of organizations to socially underrepresented groups by race, ethnicity, and gender as well as at their intersections, as this essay will examine (McKay et al., 2008). The increasingly polarized political ideology of public workforces and governors' power over executive budgets allow for the a priori assumption that state public workforces have higher levels of bureaucratic representation by race and ethnicity, and that income level of persons of color is higher under a Democratic compared to Republican governorship (Ortega, 2020). Additionally, the theory of institutional isomorphism suggests such differences may be more significant under specific institutional pressures (DiMaggio & Powell, 1983).

A regression-discontinuity design is applied to examine the relationship between gubernatorial partisanship and bureaucratic representation. The running variable is the Democratic winning margin in gubernatorial election, which indicates winning candidate only changes discontinuously at the threshold of zero. As institutional moderators, different

institutional pressures are operationalized respectively as party transition, party match between state legislative and executive branches, and state legislations on anti-discrimination in employment.

The last essay (Chapter 5), regarding the fourth question, provides dual theories for the role of labor shortages in the relationship between bureaucratic representation and citizenry coproduction. Bureaucratic representation can produce perceptions of fairness and legitimacy through a symbolic approach, which motivates citizens as customers of public service to coproduce (Ricucci & Van Ryzin, 2017). Nevertheless, a question that remains is how labor shortages in public workforces as a result of the pandemic will affect the benefits of representative bureaucracy to encourage citizenry coproduction. On the one hand, labor shortages can increase uncertainty in public service delivery which drives citizens as users to reduce ambiguity through their own contributions (Ingram and Clay, 2000). Thus, labor shortages in public agencies are assumed to amplify the positive effects of representative bureaucracy on the citizens' coproduction behaviors. On the other hand, labor shortages may reduce the working capability of public organizations, which is speculated to reduce the legitimacy of public organizations and further discourage citizenry coproduction in a representative bureaucracy (Meyer & Rowan, 1977).

A survey experiment will be conducted in the context of domestic violence. The treatment effect of labor shortages will be operationalized as whether respondents react to information indicating labor shortages of a domestic violence unit in the local police department in a hypothetical city beside the demographics. Citizen coproduction as the outcome variable will be measured by a series of questions detecting the willingness of respondents to coproduce on the issue of domestic violence.

This dissertation can contribute to the theoretical development of public administration by identifying the contextuality of impacts of bureaucratic representation and diversity on public organizational performance, providing an analytic framework for diversity management research, and adding the political and institutional concerns to the insights of accomplishing diversity, equity and inclusion (DEI) in public service. Moreover, findings of the four essays are expected to underscore the key micro, meso, and macro constructs of representation and diversity in public service in order to guide public organizations to better serve the socially underrepresented groups.

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Chapter 2

How Bureaucratic Representation Affects Public Organizational

Performance: A Meta-Analysis

2.1 Abstract

The impact of representative bureaucracy on public organizational performance has received a good deal of attention in public management. However, the literature provides little systematic rationalization about the effects of the individual constructs of representative bureaucracy on organizational performance. This meta-analysis of 648 effect sizes from 80 quantitative studies, closely examines the conditions under which bureaucratic representation affects public organizational performance. The research provides evidence on the relationship between different constructs of representative bureaucracy and organizational performance. This meta-analysis overall advances the theory of representative bureaucracy from several perspectives. It shows that the effects of representative bureaucracy on public organizational performance are positive in general, but that these effects are moderated by several contextual factors. And our finding that the effects of bureaucratic representation on public organizational performance were shaped by demographics and types of representation, levels of bureaucracy, and performance measurements adds to the micro-theory behind individual bureaucratic actions.

2.2 Introduction

As a central topic of public management research and practice, organizational performance has been frequently linked to the issue of representativeness, particularly

since the New Public Management movement (Andrews, Boyne, Meier, O'Toole, & Walker, 2005; Groeneveld & Van de Walle, 2010). Commonly understood as a bureaucracy representing particular societal populations as a whole, especially women or members of different racial or ethnic groups (Meier 2019; 1975; Groeneveld & Van de Walle, 2010), representative bureaucracy has a close connection with the organizational performance.

Specifically, representative bureaucracy is ultimately concerned with democratic outcomes, but it is the interaction of representative bureaucracy and organizational performance in terms of democratic *process* that produces equity and effectiveness. Those processes must focus on such democratic values as fairness and transparency. In this sense performance management in public organizations includes not only “effectiveness” but equity as well. (Andersen, Boesen, & Pedersen, 2016; Boyne, Brewer, & Walker, 2010; Walker & Andrews, 2015). Organizational performance includes efficiency and effectiveness, but also incorporates equity and inclusiveness. The efficiency and effectiveness tend to connote directly standardized objective measurements as espoused by, for example, the New Public Management. However, in order to accommodate to the increasingly humanized and customized public service provision, public organizational performance should also be construed from a political standpoint in terms of producing democratic processes and outcomes by including redistributive or even subjective indicators such as representation and social equity. Walker and Andrews (2015, p. 104) stress the importance of democratic processes in the delivery of public services. They point out that early studies of public organizational performance were devoted more to such measures as efficiency and effectiveness. But today, the governance of public services requires broader questions that “necessitate the examination of accountability, civil and

human rights and key questions of probity and corruption alongside democratic outcomes and participation in the democratic process.” These, they argue, are additional process dimensions of public organizational performance and especially manifested with the impact of bureaucratic representation (Nicholson-Crotty, 2017; Meier, 2006; Riccucci, 2004).

Although the interaction between representative bureaucracy and public organizational performance has been extensively examined, the conditions under which bureaucratic representation affects organizational performance have lacked close scrutiny. Indeed, it may be that the effect of bureaucratic representation is highly situational or contextual (Park 2020; Meier, 2019; Andrews, Ashworth, & Meier, 2014; Dolan, 2000; Wilkins & Williams, 2008). Thus, it is imperative to examine how certain conditions or circumstances shape the impact of bureaucratic representation on organizational performance. This research conducts a meta-analysis to synthesize 80 quantitative studies on the relationship between representative bureaucracy and organizational performance with 648 effect sizes. This study finds a significant and positive association between representative bureaucracy and public organizational performance. The moderator analysis further suggests that this positive association is facilitated by the presence of specific demographic characteristics as well as frontline settings. The study further finds that the facilitating effects of representative bureaucracy on public organizational performance is more significant at the organizational as compared to the individual level.

This meta-analysis overall advances the theory of representative bureaucracy in several ways. First, demographic salience compared with other identities increases the legitimacy of representative bureaucracy and helps promote the positive effects of

representative bureaucracy on public organizational performance. In addition, the study helps advance the theoretical framework of representative bureaucracy from active to symbolic representativeness, finding that active representation and symbolic representation are equally important approaches to enhancing the effects of representativeness on performance. Also, compared with their non-frontline counterparts, street-level bureaucrats are found to have a greater impact on public organizational performance. Finally, our findings that the effects of bureaucratic representation on public organizational performance were lower at the individual as compared to the organizational level adds to the micro-theory behind individual bureaucratic actions (see Meier 2019). In sum, this study adds new knowledge to the theory of and literature on representative bureaucracy, which has implications for future research.

2.3 Representative Bureaucracy Theory

The theoretical framework of representative bureaucracy has evolved over time. Initially, the concept of representative bureaucracy was examined in terms of the descriptive representativeness of organizations; this was defined as passive representation. Here, research examined the degree to which the demographics of public organizations reflected the demographics of the general population (Meier 1993a; Meier 1993b; Selden 1997). Kenneth Meier was the first scholar to empirically examine the linkage between passive and active representation, which asks whether bureaucrats' social or demographic characteristics correspond with their values and policy decisions. Additional advancements in representative bureaucracy theory and research found that the linkage between passive and active representation was based on a few assumptions: that bureaucrats have

discretionary powers and that organization socialization enables individuals with the same demographic backgrounds to share certain values; and as a consequence, bureaucrats will make policy decisions consistent with their counterparts in the general population and, indeed, will seek to maximize the values shared with those demographic groups (Long, 1952; Meier, 1975; Meier & Morton, 2015; Mosher, 1968).

Symbolic representation further advanced the theoretical framework of representative bureaucracy. Empirical research here found that the social origins of bureaucrats can induce certain attitudes or behaviors on the part of citizens or clients without the bureaucrat taking any action. For example, Theobald and Haider-Markel (2009) found that the mere presence of Black police officers will improve the legitimacy of law enforcement for Black citizens, suggesting that passive representation by itself can influence outcomes (also see Riccucci & Van Ryzin, 2017). Symbolic representation can also occur when citizens or clients respond favorably to the background or identity of bureaucrats, even if they do not share demographic characteristics. Gade and Wilkins (2012), for example, found that veterans receiving vocational rehabilitation services report significantly higher levels of satisfaction with the services when their counselors are veterans. Relatively fewer studies have been conducted on symbolic representation and so, its potential effects on public organizational performance especially as compared to active representation, are still in question.

In addition, representative bureaucracy theory presumes that in the aggregate or at the organizational level, the composition of the bureaucracy should reflect the clients it serves, thus ensuring that their voices will be heard and democratic values fulfilled. And although representation at the individual level is certainly reflected at the aggregate or

organizational level, questions remain regarding the effects of individual bureaucratic actions on representativeness and ultimately organizational performance (Meier, 2019; Andrews, Groeneveld, Meier & Schröter, 2016). As Meier (2019, 41) has pointed out, the aggregate focus “is theoretically justified by micro theories of representation that do not require an individual client come into contact with a specific individual bureaucrat” (also see Meier & Morton 2015).

As noted, apart from outcomes, representative bureaucracy is also expected to be concerned with the processes of public organizational performance (Andersen et al., 2016). Compared with the private sector which attaches great importance to the cost-effectiveness or monetary value of organizational performance, public organizations pay much more attention to the quality of public service delivery (Walker & Andrews, 2015). Performance management in the public sector does focus on program effectiveness but it also considers process-related criteria which emanate from traditional democratic values, such as due process, equity, integrity, and transparency (Moynihan et al., 2011). Since representation is one core element in democracy, bureaucratic representation within public organizations to some extent ensures that democratic processes of organizational performance are taken into account. A review of the representative bureaucracy literature suggests that, apart from program effectiveness, the democratic outcomes of bureaucratic representation such as proportional representation, budget and policy priorities, and reduced inequality for the disadvantaged societal groups are all important dimensions to be considered in public organizational performance management (Bishu & Kennedy, 2019). Bureaucratic representation allows the path of public service delivery to be more accessible to the various groups that are represented, which in turn contributes to the performance and

management of public organizations.

2.4 The Effect of Context on the Representativeness-Performance Interaction

Despite the potential for bureaucratic representation to positively affect public service delivery, the actual outcome may vary depending upon certain conditions or circumstances. It has been widely confirmed that bureaucratic discretion is a precondition for representative behaviors within the bureaucracy. As Meier (2019, 40) points out this principle can be generalized to contextual theories of representative bureaucracy, where moderators can affect, for example, the linkage between passive and active representation. But, aside from control variables in representative bureaucracy studies, there has been virtually no systematic analysis of other conditions that may shape the actions of bureaucrats, especially those which are highly situational or contextual (Andrews et al., 2014; Dolan, 2000; Wilkins & Williams, 2008). Andrews, Boyne, Meier, O'Toole, & Walker (2016) have advocated for the systematic accounting of contextual factors in the inquiry of relationship between representative bureaucracy and public organizational performance. They suggest that context shapes the definition of representativeness and performance, may directly determine the limitations and availability of bureaucratic representation, and can indirectly affect or interact with the relationship between representative bureaucracy and organizational performance (Andrews et al., 2016). Thus, it is necessary to review the current literature of representative bureaucracy correlated with the performance of public organizations and systematically analyze the effects of contextual factors on this correlation. In order to address the potential manifestation of contextual impacts, this meta-analysis attempts to discuss the contextual factors in a

“set/group” manner.³

2.4.1 Demographic Facet

Empirical research suggests that the representativeness in bureaucratic representation accommodates the demographic characteristics of the populations that the bureaucracy serves. Mosher (1968) suggested the existence of a linkage between passive and active representation, i.e., that bureaucrats who share demographic backgrounds with the citizenry, are more likely to push for the needs and interests of that cohort of the citizenry; thus bureaucrats behavioral actions are consistent with their values and attitudes. To be sure, apart from bureaucratic discretion (Keiser et al., 2002; Meier & Stewart, 1992) there are additional conditions for the successful passive-active linkage of bureaucratic representation in the delivery of public services, including the critical mass of the demographic or identity group (Nicholson-Crotty, Nicholson-Crotty, & Fernandez, 2017; Young & Hinder, 1999), bureaucratic involvement in specific policy areas (Keiser et al., 2002; Selden et al., 1998), and shared bureaucrat-citizen experience (Meier & Nicholson-Crotty, 2006). Thus, the demographic perspective has been advanced as a critical factor in public organizational performance and management (Andrews et al., 2016; Meier, 1975).

As Meier (2019, 40) has stated the “bare bone’s theory of representation holds that the translation of [passive representation] PR into [active representation] AR is contingent on the salience of the identity in question.” But while existing empirical studies examine identities from the perspective of demographics, the question of whether race, ethnicity and/or gender will have a greater impact on organizational performance as compared to

³ We use a broad definition of context which refers to the research-specific contingencies of both representative bureaucracy and public organizations that shape the bureaucratic representation-organizational performance relationship observed in individual studies

other identities (e.g., age, language, professional affiliation) have not been studied. Existing research suggests that race, gender and ethnicity are the primary focus of the demographic dimensions since they are the most salient demographic characteristics being examined and have had the largest impact on policy-relevant attitudes, values and bureaucratic behaviors (Park 2020; Hinderer, 1993; Meier & Stewart, 1992; Meier, Wrinkle, & Polinard, 1999). That is, representative bureaucracy studies have focused on the effects of gender, race and ethnicity on either political attitudes and policy decisions (Hinderer, 1993; Keiser et al., 2002; Meier & Stewart, 1992) or policy outcomes (Dee, 2005; Dolan, 2000; Gidengil & Vengroff, 1997; Jamil & Dangal, 2009; Kelly & Newman, 2001; Meier & Bohte, 2001; Selden, 1997; Sowa & Selden, 2003). Thus, it is reasonable to postulate that public organizational performance is more likely to be promoted by representative bureaucracy with a focus on demographic factors such gender, race and/or ethnicity, as compared with, for example, age, marital status and language.⁴

H1: Bureaucratic representation focused on gender, race, and/or ethnicity will have a greater impact on public organizational performance than that without such a focus.

2.4.2 Symbolic/Active Representation

The theory of representative bureaucracy is underdeveloped with respect to symbolic representation. As noted, earlier symbolic representation stems from passive or descriptive representativeness. When the bureaucracy reflects the demographic or identity makeup of the population, certain attitudes or behaviors can be induced on the part of

⁴ Parenthetically, it may be the case that outside the U.S., the issue of language especially in minority communities may be an essential characteristic in representative bureaucracy studies, because language may be a major obstacle in terms of the ability of bureaucrats to serve targeted minority communities (Eckhard, 2014; Gravier & Roth, 2020). However, relatively few representative bureaucracy studies focus on language.

clients or citizens (Theobald & Haider-Markel, 2009; Bradbury & Kellough, 2008). Symbolic representation recognizes that the social or identity characteristics of bureaucrats can influence how citizens or clients view the agency's legitimacy which in turn can influence their willingness to comply or cooperate with organizational decisions or outcomes. Theobald and Haider-Markel (2009), for example, found that a predominately African-American police force can create greater legitimacy among African Americans in the community, notwithstanding the actions or behaviors of the police officers. They also found that whites are more likely to perceive police actions as legitimate if the actions were taken by white officers. Active representation can also produce these responses among the citizenry or clients, but it requires *actions* on the part of bureaucrats (Mosher, 1968).

However, with symbolic representation, citizens or clients react positively toward the bureaucracy, without the bureaucrat taking any action. In effect, symbolic representation examines whether the attitudes of citizens or clients will be influenced by the descriptive representation of those citizens or clients (Gade & Wilkins, 2012). As Pitkin (1967) argues, descriptive representation can produce symbolic representation, which works "on the minds of those who are to be represented or who are to be the audience accepting the symbolization" (Pitkin 1967, 111). Pitkin goes on to say that it does not involve the activity of acting for the represented.

Riccucci, Van Ryzin, and Li (2016) using an experimental design, found that the descriptive representation of women in the workplace increased women's intentions to recycle hard plastics and, importantly, their willingness to do the more arduous task of food composting. Indeed, the symbolic representation effects were largest for this more difficult type of recycling. Compared with direct policy outcomes that result from behavioral

representativeness through active representation, the effects of symbolic representation may be more implicit or nuanced. The research on symbolic representation correlated with public service delivery and public organizations tends to concentrate on the changes in performance from a perceptual perspective (see Riccucci et al., 2016). That is to say, symbolic representation produces *perceptions* of fairness and legitimacy, whereas active representativeness produces tangible outcomes for clients or citizens. It should further be noted that experimental studies isolate a single factor in order to measure its true significance, but these studies do not portray the actual complexity of real-world symbolic representation where many more factors or variables come into play. This does not diminish the importance of online experimental studies, but most symbolic representation studies here address perceptions which are more nuanced as compared to the policy outputs and outcomes of active representation.

This is not to say that perceptions are unimportant. As Theobald & Haider-Markel (2009, p. 411), point out, “Human perceptions of situations have real importance even when perceptions might be wrong. In a very real sense, an individual’s perception is his/her reality.” Nonetheless, the effects of symbolic bureaucratic representation on public organizational performance may not be as significant as those from active representative bureaucracy.

H2: Active bureaucratic representation has a greater impact than symbolic bureaucratic representation on public organizational performance.

2.4.3 Organizational Stratification: Frontline/Non-frontline Representation

The effects of bureaucratic representation on public organizational performance may differ depending upon the organizational level where bureaucrats work. Some have

argued that organizational stratification is a contextual variable that can affect, for example, the linkage between passive and active representation (see, Keiser, et. al., 2002; Selden, 1997). Bureaucrats may be working at the frontlines or street-levels of the bureaucracy or they may be in management or leadership positions (Wilson, 2019). Discretion as noted has been found to be an important precondition of active representative bureaucracy, but the extent to which bureaucrats have discretion varies across different hierarchical levels of the bureaucracy (Lipsky, 2010; Selden, 1997; Wilson, 2019). Selden (2003), for example, found that when minority administrators in supervisory positions perceive themselves to have more discretion, they will enact policies that are more representative of minority values and interests. While additional studies examine representative bureaucracy from a managerial perspective (also see, e.g., Selden, 1997; Carroll et al., 2019), a good deal of the research on representative bureaucracy focuses on street-level bureaucrats. These workers have discretionary authority at the frontlines as they interact directly with citizens or clients. The proximity of the client certainly enhances the salience of social identity. Police officers, for example, have a great deal of discretion that affects policy outcomes directly (e.g., a decision to engage in racial profiling). Some have argued that given their vast discretionary authority, street-level bureaucrats are more likely to actively represent constituents than managers or supervisors (Meier, 1993; Meier & Bohte, 2001). With respect to the interaction between representative bureaucracy and organizational performance, street-level bureaucrats with their field expertise and considerable discretion can greatly affect the lives of citizens or clients of the bureaucracy. With high levels of discretion, representative bureaucracy at the street level is hypothesized to contribute more to public organizational performance than at the non-frontline levels.

H3a: Frontline bureaucratic representatives will have a greater impact on public organizational performance than their non-frontline counterparts.

2.4.4 Levels of performance measurement: From the Aggregate to Individual Level

The theory of representative bureaucracy presumes that in the aggregate or at the organizational level, the bureaucracy should look like the clients it serves, as this ensures that government decisions are more democratic, reflecting a diversity of interests. A good deal of research on representative bureaucracy is at the aggregate or organizational level. But, as Meier (2019) points out, questions persist on the effects of level of performance. In their research, Andrews, Boyne, Meier, O'Toole, & Walker (2016) acknowledged the difficulty of disentangling the effects of individual contexts since their impact might be decided by a specific set of contextual factors. Performance measured at the individual level may differ from when it is measured at the organizational level, which further suggests the possible variation in effects of representative bureaucracy between different organizational levels. As the direct beneficiaries of bureaucratic representation, individuals as the members of the social groups in question are the first to react to the effects of representativeness. However, this also suggests that the effects of representative bureaucracy are limited at the individual level. They are generally twofold: the symbolic impact that stems from the mere increase in proportion of bureaucratic representatives, and the active impact after the hands-on interaction between the clients and bureaucratic representatives.

However, once elevated to overall organizational performance, the process that representativeness within the bureaucracy affect the targeted group becomes far more complicated, and increases the possibilities that bureaucratic representation can benefit

public organizational performance. Apart from the direct effects of representative bureaucracy, increased representativeness is likely to motivate citizens or clients to cooperate with public organizations in coproduction, which can positively affect public service delivery (Meier 2019; Ostrom et al., 1979). Likewise, public values may be enhanced, which can also substantially improve the overall performance of public organizations (Hong, 2016). Nevertheless, coproduction is not dependent on the presence of representativeness. Its antecedents include intrinsic motivations, social affiliation (or peer pressure), identification with normative purposes (Alford, 2002; Sharp, 1980; Thomas, 2012), citizens' self-efficacy (Bandura, 1997; Parrado, Van Ryzin et al., 2013) and perceived service satisfaction (Alford, 2002). Thus, coproduction as independent from representative bureaucracy can promote the positive effects of bureaucratic representation on the performance of public organization as a whole (see Meier 2019). Moreover, improvement in organizational performance can also be attributed to institutional pressures. Once representative bureaucracy is seen to benefit public organizational performance, organizations, as driven by normative isomorphism, may strive to increase representativeness in order to copy others' success (DiMaggio & Powell, 1983). Thus, at the aggregate level, the facilitating effects of bureaucratic representation on organizational performance can be multiplied by other productive mechanisms within public organizations. Compared with its effect on overall public organizational performance, the positive influence of representative bureaucracy is weaker at individual level.

H3b: The positive impact of representative bureaucracy on public organizational performance is smaller at the individual as compared to the organizational level.

2.5 Data and Method

This study relies on meta-analysis to examine the effect of representative bureaucracy on public organizational performance and the contextual factors moderating the relationship. As a quantitative systematic review method, meta-analysis statistically analyzes the empirical results of a large population of existing studies in order to generalize the research findings on the relationship that the studies focus on (Glass, 1976). Beside its frequent use in the fields of psychology, medicine, and business management, the use of meta-analysis in public administration research has been growing in recent years (see, e.g., Park 2020; George et al., 2019; Lu, 2018; Harari et al., 2017; Bellé, & Cantarelli, 2017; Cantarelli et al., 2016; Homberg et al., 2015;).

Compared with traditional literature reviews, meta-analysis is a stronger tool for combining and generalizing research findings (Ringquist, 2013). Unlike narrative reviews that typically summarize patterns across different research results through counting statistically significant results, meta-analysis systematically synthesizes all the individual results among existing studies. In this way, meta-analysis enables researchers to statistically aggregate the findings from primary studies to form a coherent result that is generalizable across those studies. Moreover, meta-analysis can detect and analyze the variability in results across existing studies, which is extremely useful to empirically evaluating the effects of possible moderators embedded in research designs or settings underlying the relationships examined. In sum, meta-analysis allows us to not only summarize the findings in existing literature concerning the relationship between representative bureaucracy and public organizational performance, but also identify the factors shaping the representative bureaucracy–organizational performance relationship.

2.5.1 Literature Search and Inclusion Criteria

The meta-analysis started with a search for existing studies. The cutoff date for inclusion of relevant studies was the end of March 2020. To ensure the inclusiveness of the literature research, we employed three literature search strategies to identify relevant literature, following the best practices suggested by Reed and Baxter (2009) and Ringquist (2013). First, we searched in three academic databases, including EBSCO (for peer-reviewed journal articles), Web of Science (for peer-reviewed journal articles), and ProQuest (for dissertations). Articles including “bureaucratic representation/representative bureaucracy + performance”, “race/Latino/black public + organization performance”, “sex/gender/female + public organization performance/outcomes”, and “active/symbolic bureaucratic representation/representative bureaucracy + performance” in the title, abstract, or full text were included. Second, the search was repeated using Google Scholar⁵, paying special attention to the newly published and highly cited academic works referenced. Only those references which shared the same keywords in the searching scheme of database records were included. Third, we also referred to the “Representative Bureaucracy Database” compiled through the Project for Equity, Representation and Governance, directed by Dr. Kenneth J. Meier (Project for Equity, Representation and Governance, 2018). The literature search was conducted in March of 2020 and a sum of 12,465 articles were collected.

These collected articles were further screened to identify those which were relevant for the present meta-analysis. We first reviewed the abstracts of the collected articles and

⁵ Google Scholar provides a comprehensive coverage of scholarly literature in a variety of publishing formats such as journal articles, books, book chapters, and conference papers. The reliance on Google Scholar in the search allowed us to reach a diverse set of studies.

identified 192 potentially relevant studies. We then performed full-text reviews, using the following four inclusion criteria. First, the focal predictor, *bureaucratic representation*, is operationalized as demographics.⁶ According to Kennedy's (2014) review of the representative bureaucracy literature, the majority of empirical studies use descriptive or passive representation as the focal predictor and measure it predominantly using demographics. We followed this practice in the present analysis. Second, the dependent variable, *organizational performance*, can be operationalized as organizational outcomes at either the individual level (e.g., students' test scores) or the organizational level (e.g., overall program effectiveness and equality). Although Kennedy (2014) concluded that empirical research on representative bureaucracy typically linked to specific outcomes such as promoting educational performance in terms of students' test scores (Dee, 2005; Meier & Bohte, 2001; Meier & England, 1984), Bishu and Kennedy's (2019) more recent review suggests that representative bureaucracy research has embraced a broader measure of organizational outcomes including client satisfaction, reduced inequality (Selden, 1997; Sowa & Selden, 2003), and law enforcement effectiveness (Nicholson-Crotty et al., 2017; Wilkins & Williams, 2008). As a result, similar to previous meta-analyses on organizational performance (e.g., Gerrish, 2016; George et al., 2019), we adopted this broader measurement of organizational performance, which helps capture different dimensions of organizational performance and further enhances the external validity of our analysis.

Third, studies only reporting descriptive statistics were excluded, since we cannot draw statistical information on the bureaucratic representation-organizational performance

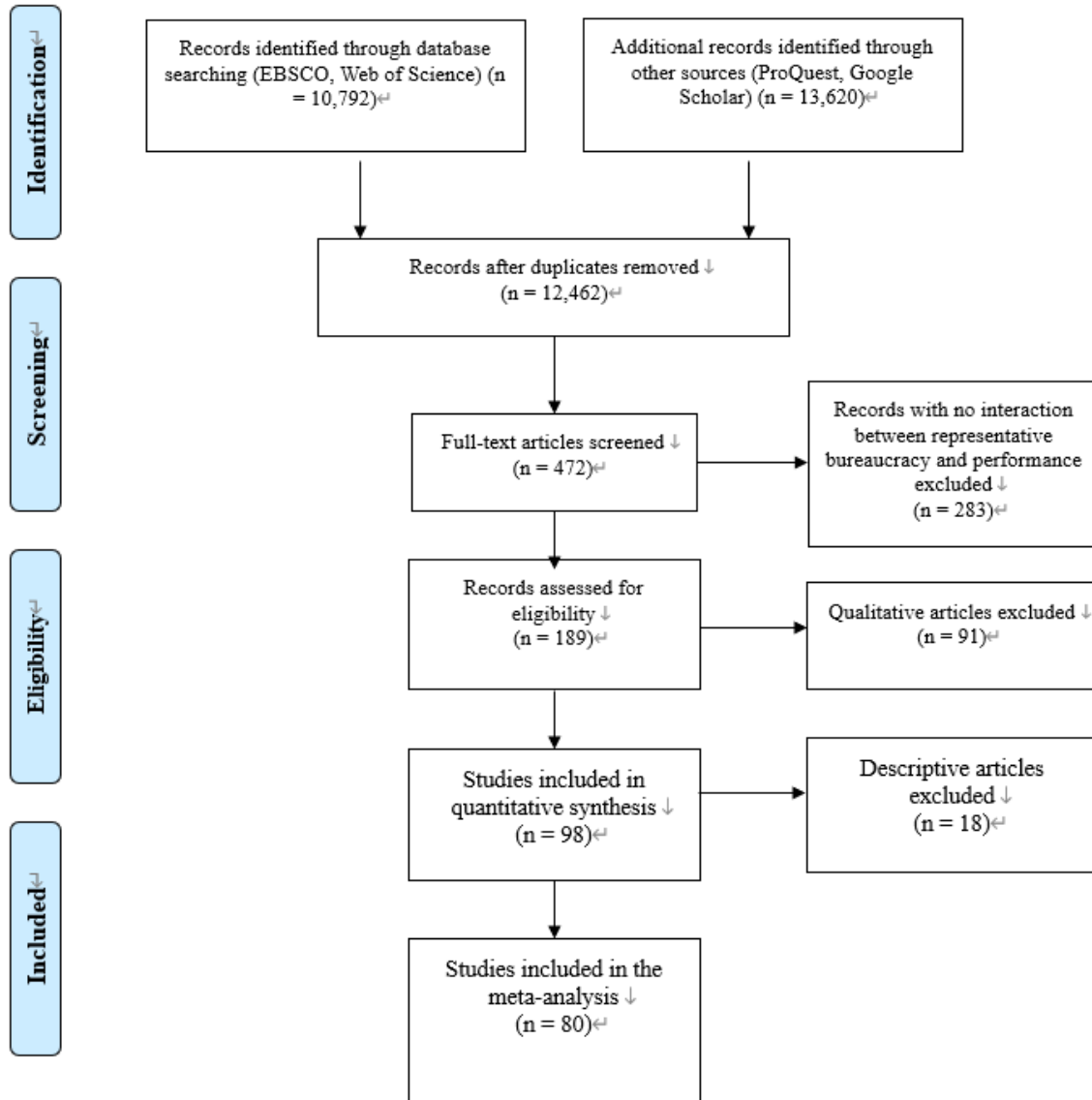
⁶ This meta-analysis did not include studies on diversity management, because these studies may introduce bias in the synthesis of effect sizes since diversity management and bureaucratic representation are measured at different levels. Unlike diversity, diversity management was commonly examined as moderators of other associations, which cannot be comparatively analyzed with bureaucratic representation.

relationship from these studies. Fourth, studies that do not present correlation coefficients or *t*-statistics were removed from the collection, since there is not enough statistical information to calculate effect sizes. Based on a refined full-text review, 80 studies met the inclusion criteria and thus serve as our final sample for the meta-analysis. These 80 studies include 75 published studies and 5 unpublished studies (“grey studies”)⁷ Sixty-nine studies were observational while only 11 studies designed experiments. The majority of these studies are U.S.-based (56 studies), with less than a third conducted in other countries (24 studies).⁸ As for organizational performance, 12 articles focused on effectiveness, 22 on efficiency, 11 on representation, 21 on equity, and 14 on multiple dimensions. The PRISMA flow diagram describing the detailed procedures of literature search is presented in Figure 2.1.

⁷ We followed the traditional practice to consider a study that is not published in a peer-reviewed academic journal as unpublished or grey literature (Rothstein & Hopewell, 2009).

⁸ Since a number of countries in the non-US literature share the diverse demographic compositions with U.S. (e.g. Western European countries), simply separating the effects based on the U.S. origin might overlook the impacts caused by the nuances in demographic diversity between non-U.S. countries. Thus, the classification of nation-state (i.e., a country "where the great majority are conscious of a common identity and share the same culture" (UNESCO, 2017)) versus multicultural state based on the level of immigration and number of minority members and “home” ethnic members (UNESCO, 2017) is more reasonable to check the robustness of our empirical models. There are only 5 papers in our sample conducting their research in the nation-states (i.e. China, Korea, Ghana, Kuwait, and Malaysia), and the empirical results after eliminating these articles still highly resemble the results from 80 studies. Thus, the types of countries might not have a significant impact on the relationship between bureaucratic representation and public organizational performance.

Figure 2.1 PRISMA Flow Diagram



2.5.2 Coding Procedures

We then extracted and coded information from the included studies. Two categories of information were coded in the synthesis--effect size information and moderator information (Lipsey, 2009).

In this meta-analysis, the effect sizes, describing the standardized associations between the focal predictor *bureaucratic representation* and the dependent variable *public*

organizational performance, were calculated into correlation-based (r -based) effect sizes. The correlation coefficient r , if not provided in the primary study, was calculated using the following equation: $r = \sqrt{\frac{t^2}{t^2 + df}}$, where t is the t -score testing the null hypothesis that the population correlation $Rho = 0$, df is the degree of freedom.

However, a number of studies were found that their effects were either not generated on the basis of linear correlation or lacking explicit conditions to generate r . Under these circumstances, we applied several modification strategies, following the suggestions from Hedges (2009) and Ringquist (2013). First, for the studies with a mean-comparison technique, the group-difference-based effect sizes (Cohen's d) were first calculated and then transformed into r . Second, for the research implementing logit/probit models, odds-based effect sizes were first adopted and then converted into r . Third, several studies only reported regression coefficients with significant levels using asterisks, t scores or z scores at the corresponding symbol levels were introduced to estimate the values of r , respectively. If the correlation was not significant, the effect size was coded 0.

Moreover, in studies containing multiple effect sizes, the r of all these effect sizes were calculated to maintain the within-study variation. Further, in order to correct the small bias associated with correlation coefficient r , Fisher's z was applied to represent the correlation-based effect sizes and was calculated using the following equation: $Z_r = 0.5 \ln \left[\frac{1+r}{1-r} \right]$, with variance $V[Z_r] = \frac{1}{(n-3)}$. Finally, 648 effect sizes were drawn from 80 primary studies.

In order to examine the situational factors affecting the relationship between representative bureaucracy and public organizational performance, the contextual characteristics in the research design were extracted from the primary studies and coded as

moderators. Specifically, according to the aforementioned hypotheses, four moderators were generated dichotomously. The first moderator *demographic facet* was coded as 1 if the representation relates to gender, race, or ethnicity and 0 if otherwise. The second moderator *active/symbolic representation* was coded as 1 for active representation and 0 for symbolic representation. The third moderator *frontline/non-frontline representation* was coded as 1 if the representation was measured at the frontline and 0 if otherwise. The fourth moderator *level of performance measurement* was coded as 1 for organizational performance measured at the individual level and 0 for the organizational level. Table 2.1 provides the distribution of these moderators within our sample.

Table 2.1 Distribution of Moderators within the Sample

Contextual Moderators	Study-level Distribution	Effect Size-level Distribution
Race representation	59.04%	68.50%
Gender representation	49.40%	49.03%
Active representation	50.60%	53.19%
Symbolic representation	37.35%	28.23%
Frontline representation	48.19%	49.93%
Individual performance measurement	43.37%	37.00%

Note: multiple contextual moderators can be included in one study so that the cumulative percentage does not equal to 100%.

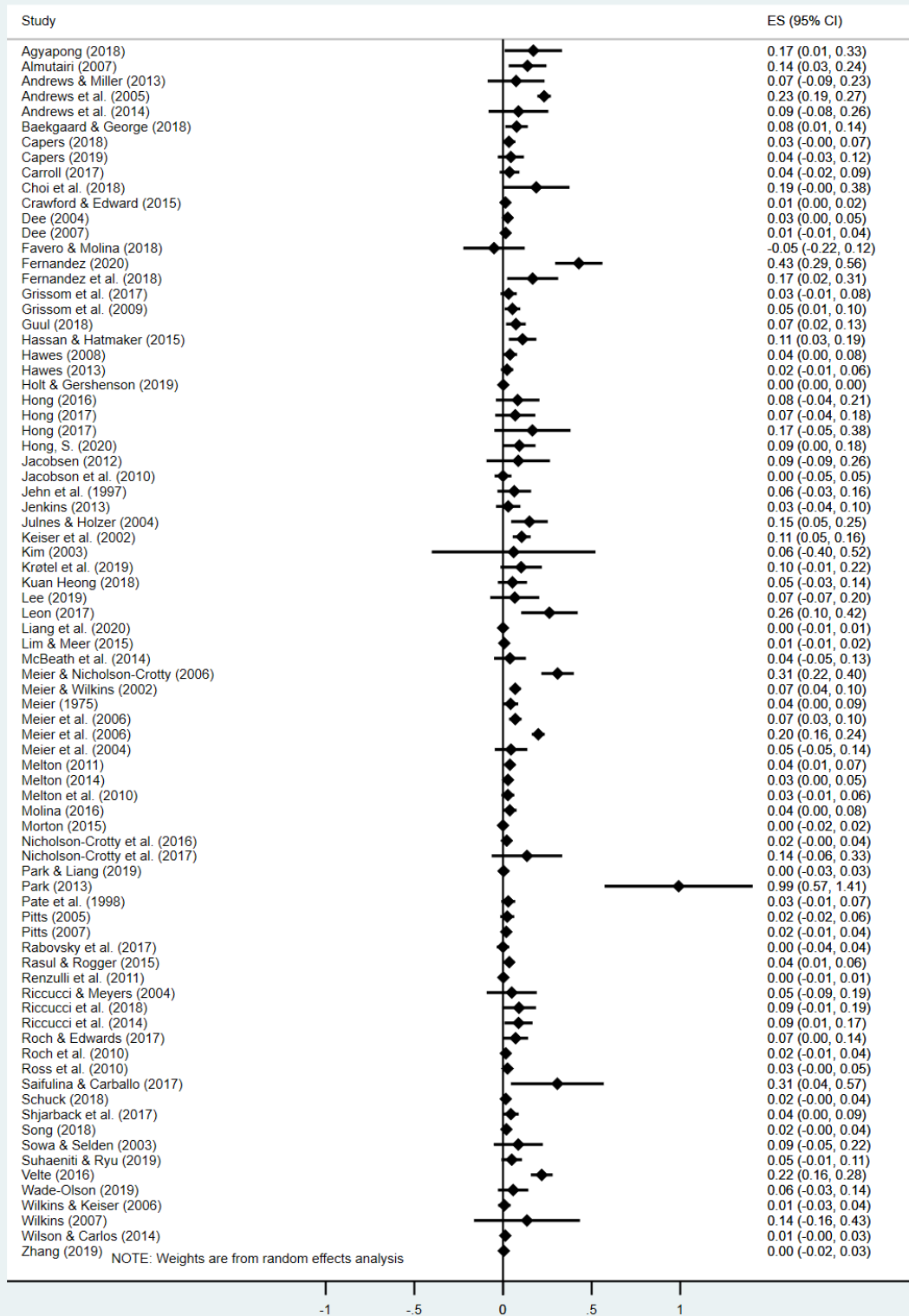
2.6 Results

2.6.1 Average Effect Size Analysis

The 648 effect sizes representing the association between representative bureaucracy and public organizational performance range from -0.570 to 0.952. Of all the individual effect sizes, a majority of 449 indicated a positive association, supporting the facilitating effects of bureaucratic representation on public organization performance. Only 3 effect sizes demonstrated a negative association, which underscores the tradeoff between

bureaucratic representation and public organizational performance. The remaining 196 effects size yield no association between the two variables. The study-level distribution of effect sizes across the 80 studies is presented in Figure 2.2.

Figure 2.2 Distribution of Study-Level Effect Sizes across Existing Studies



Before estimating the average effect size across primary studies, the effect size heterogeneity was investigated through the Q -test, in order to select the appropriate calculating strategy between fixed-effects and random-effects models. The Q statistic is 10189.27 with 647 degrees of freedom, and its corresponding p -value is smaller than 0.01. This result suggests that under 99% confidence, the null hypothesis that the variation among the effect sizes can only be explained by sampling error was rejected. Moreover, the I^2 statistic of 93.7% also implies a high level of heterogeneity across effect sizes (Higgins & Thompson, 2002). Thus, the random-effects model was applied to generate an average effect size of 648 effect sizes from 80 studies. The weighted average effect size in Fisher's z is 0.029 ($z = 26.56, p < 0.01$), with a 95% confidence interval of [0.027, 0.031]. The positive though small average effect size suggests a significant positive association between representative bureaucracy and public organizational performance, despite the relatively minimal magnitude of correlation. Thus, the facilitating effects of bureaucratic representation on public organizational performance as widely proposed are empirically supported (e.g. Bradbury & Kellough, 2008; Lim, 2006; Pitkin, 1967; Riccucci et al., 2014; Selden, 1997; Thomas, 1998; Wilkins & Williams, 2008).

2.6.2 Findings: Meta-Regression Analysis

A meta-regression analysis was conducted to further evaluate the systematic variability in effect sizes which was theoretically postulated to attributing to the previously mentioned situational moderators: demographic facet, active/symbolic representation, frontline/non-frontline representation, and levels of performance. The regression model is specified as follows:

$$\begin{aligned}
 ES_i = & b_0 + b_1 \textit{Gender \& Race}_i + b_2 \textit{Frontline Representation}_i \\
 & + b_3 \textit{Active Representation}_i + b_4 \textit{Performance Level}_i \\
 & + b_5 \textit{Publication Bias}_i
 \end{aligned}$$

where ES_i refers to the raw effect size in original study i in terms of Fisher's z , $\textit{Gender \& Race}_i$ refers to whether gender, race or/and ethnicity as focal indicator was examined in the study, $\textit{Frontline Representation}_i$ refers to whether the public agency being affected by bureaucratic representation was at the frontline level, $\textit{Active Representation}_i$ refers to whether the effect of representative bureaucracy on public organization performance was the result of active representation, $\textit{Performance Level}_i$ refers to whether the performance of public organization was measured at individual level, and $\textit{Publication Bias}_i$ refers to whether a study appeared in a peer-reviewed publication outlet (published study=1 and unpublished study =0).

We used advanced meta-regression models to address the two empirical challenges, effect size heteroscedasticity and non-independent observations. First, given that the effect sizes were generated from studies with various sample sizes, heteroscedasticity became a concern in the meta-regression. Second, to maintain the within-study variability, we retained all the effect sizes eligible for the meta-analysis from original studies, rather than selecting the most representative effect sizes (Ringquist, 2013). However, this treatment is likely to undermine the observation independence. As a result, these two problems are difficult to be resolved by traditional multivariate analysis. In this study, we followed the best practices suggested by (Ringquist, 2013) to apply clustered robust variance estimation (CRVE) and generalized estimating equations (GEE) to specify the meta-regression model (Ringquist, 2013). The former strategy mitigates the effect of heteroscedasticity by

introducing a clustered robust parameter variance–covariance matrix suggested by White (1980) and the latter maintains the contribution of studies with few effect sizes by downplaying the importance of number of effect sizes on regression results (Liang & Zeger, 1986). Armed with the two strategies, the meta-regression model is more assured to estimate meta-regression parameters.

The meta-regression results using both CRVE model and GEE model are presented in Table 2.2. Both models had the *F*-statistic and Wald χ^2 statistic with corresponding *p*-values smaller than 0.01, which indicated the statistical significance. As showed in Table 2.2, the two models yield similar results.

Table 2.2 Meta-Regression on Representative Bureaucracy—Organizational Performance Relationship

Moderator	CRVE	GEE
Gender/race	.0397** (.0196)	.0411** (.0163)
Active representation	-.0016 (.0128)	-.0015 (.0105)
Frontline representation	.0385** (.0188)	.0283* (.0155)
Performance level	-.0304* (.0178)	-.0359** (.0161)
Publication bias	-.0028 (.0161)	-.0049 (.0172)
Constant	-.0084 (.0192)	-.0132 (.0188)
No. of effect sizes	648	648
No. of studies	80	80
<i>F</i>	14.62***	
<i>R</i> ²	0.0880	
Wald χ^2		84.01***

Note. Robust standard errors in parentheses. CRVE=Clustered robust variance estimation; GEE=Generalized estimating equations. *significant at .1, **significant at .05, ***significant at .01.

First, the moderator representing the demographic characteristics of the research has a statistically significant and positive effect. We postulate that the effect of bureaucratic

representation focusing on race/ethnicity and gender is greater than that focusing on other demographics. In both CRVE and GEE models, the significant and positive coefficients of the variable ($b_{CRVE} = 0.0397$, $p < 0.05$; $b_{GEE} = 0.0411$, $p < 0.05$) support the stronger impact of representation of the two demographics. Indeed, bureaucratic representation of gender, race and ethnicity has always been the major focus of representative bureaucracy studies. Compared with other demographics such as age, marital status, and language, gender, race, and ethnicity are the most direct denominators for social redistribution and remain the most salient demographic characteristics affecting individuals' policy-related attitudes (Hindera, 1993; Kennedy, 2014; Meier & Stewart, 1992; Meier et al., 1999). Thus, our findings confirm *H1* that bureaucratic representation as measured by gender, race, and/or ethnicity will have a greater impact on public organizational performance as compared with other identities.

Second, there is no significant difference in effects between active representation and symbolic representation, thus *H2* is rejected. The coefficient of the variable representing active/symbolic representation is positive as expected, but it is not statistically significant ($p > 0.1$). This result suggests that there seems no substantial difference between active and symbolic representation in shaping organizational performance.

Third, the difference in effects of bureaucratic representation varying across different organizational levels is found, thus confirming *H3a*. Both meta-regression models report significant and positive coefficients of the variable on frontline bureaucrats ($b_{CRVE} = 0.0385$, $p < 0.05$; $b_{GEE} = 0.0283$, $p < 0.1$). This finding implies that the effect of bureaucratic representation on organizational performance at the frontlines or street-levels is greater than that at the non-frontline levels.

Fourth, in accordance with our expectations, the facilitating effects of bureaucratic representation on public organizational performance was lower at the individual as compared to the organizational level. The meta-analysis found that the coefficient of performance measurement at organization/individual level was statistically significant but negative ($b_{CRVE} = -0.0304, p < 0.1$; $b_{GEE} = -0.0359, p < 0.05$). This finding suggests that the positive impacts of representative bureaucracy were more salient on overall public organizational performance rather than on the performance of individuals within public organizations. In other words, bureaucratic representation is more likely to benefit public organizational performance when other conducive mechanisms within the organizations are well managed.

Lastly, the issue of publication bias was managed within the meta-regression. A typically methodological concern in meta-analysis is that the results can be deviated by the systematic difference in effect sizes between published and unpublished studies (Sutton, 2009). Although we identified and included five unpublished studies in the meta-analysis, we still take additional steps to detect the potential publication bias. The Egger test and Begg test were first implemented. Both tests rejected the null hypothesis of no publication bias ($p < 0.01$). Although both Egger and Begg test results could not guarantee a serious publication bias (Ringquist, 2013), we further explored publication bias in the meta-regression by comparing the effect sizes from published and unpublished studies. In both CRVE and GEE models, the coefficients of the publication bias variable indicate that effect sizes from published studies are slightly smaller than those from unpublished studies, but the differences are not statistically significant ($p > 0.1$). In other words, we cannot reject the null hypothesis that the deviating effect of unpublished studies on the effect sizes is

zero. In sum, there is little evidence that effect sizes in the representative bureaucracy literature are contaminated by publication bias.

2.7 Discussion: Does context matter?

As a response to the calls by the representative bureaucracy theorists (e.g. Meier, 2019; Andersons, 2016; and Andrews, 2016), this meta-analysis links representative bureaucracy with contextual factors. First, the postulated distinct effects of bureaucratic representation of specific demographic characteristics were empirically supported, which indicated demographic identity salience as important determinants to the effect of representative bureaucracy. As defined by Randel, identity salience is the extent to which a demographic category is used by individuals to describe the members of their work groups (Randel, 2002). Even though individuals' demographic identity salience has been argued to be subject to the temporal changes (e.g., Gergen, 1977; Alexander & Knight, 1971), the salience of certain demographic categories can be more stable since the stereotypes and impressions of others related to these demographics are predominant (Randel, 2002). Thus, identity salience has mostly used to identify the individual demographic differences and strategic behaviors to adapt to the dominant social identity groups (e.g. Randel, 2002; Brewer, 1988; Tajfel, 1982; Weick, 1979). However, this does not exclude the possibility that the identity salience at group level can be used to direct the bureaucratic representation of the socially disfavored groups. After all, categorizations tend to be the basis for the lasting stereotypes, which is one antecedent of social inequity (Taylor et al., 1978; Snyder, Tanke, & Berscheid, 1977). Applying the terminology to the sphere of representative bureaucracy, the outstanding effects of gender, race and/or ethnicity as

examined in our meta-analysis substantiate the relevance of demographic identity salience, albeit conceptualized in sociology, in the inquiry of representative bureaucracy. The high resilience of the stereotypes of certain demographics such as gender, race and ethnicity makes them hard to adjust over time, which further retains the salience of these demographics in the representative bureaucracy as well as the importance of these demographic identity groups to the relevant social issues (Gilad & Alon-Barkat, 2018). The resulting demographic identity salience produces more significant effects of the bureaucratic representation of these groups on the operations of related public policies or programs.

Moreover, bureaucratic representation, as expected, was more effective at enhancing public organizational performance at the frontline rather than non-frontline levels. As previously discussed, discretion has been an acknowledged prerequisite for an effective representative bureaucracy. Because street-level bureaucrats work directly with clients, fully understanding and interacting with the social groups they represent, frontline workers may be more apt to exercise their discretionary authority as compared to non-frontline workers (see, e.g. Lipsky, 2010; Meier & Bohte, 2001; Sowa & Selden, 2003; Wilson, 2019). Therefore, the observed stronger effects of bureaucratic representation at the frontline compared with non-frontline levels also suggests that discretion has been one major determinant to the ability of bureaucratic representativeness to positively affect public organizational performance (Meier, 2019; Huber & Shipan, 2002; Keiser et al., 2002; Meier & Nicholson-Crotty, 2006; Moe, 1984; Selden et al., 1998).

Additionally, representative bureaucracy contributed to overall public organizational performance more than when performance was measured at individual

levels. The limited paths of representation-performance interaction are magnified at organization level, allowing the positive effects of bureaucratic representation to cascade throughout public organizations and also further interacts with other mechanisms. Thus, it may be reasonable to speculate that apart from working as direct facilitators of public organizational performance, representative bureaucracy can also work as a moderator to catalyze the positive association between organizational performance and other factors such as coproduction (Alford, 2002; Hong, 2016; Ostrom et al., 1979). Despite our findings, further investigation into the micro-theory behind individual bureaucratic actions can provide important insights for scholars, as will be discussed shortly.

Surprisingly, the effects of symbolic bureaucratic representation were similar with those of active representation on improving public organizational performance. This finding may be explained by the shift from the second wave to the third wave of representative bureaucracy research as summarized in Bishu and Kennedy's (2019) meta-review. In the 2000s, passive-to-active representation studies was a primary focus of academic inquiry into representative bureaucracy, because of the concern with discretion and policy involvement as preconditions for representativeness (Keiser et al., 2002; Meier & Stewart, 1992; Selden et al., 1998). However, as public service delivery becomes increasingly client/citizen-oriented, the extent to which citizens perceive they are being represented has become an increasingly important focus of bureaucracy research. Perceptions of government performance, as noted, promote legitimacy and coproduction in public service delivery (Bishu & Kennedy, 2019). Thus, the newest iteration of representative bureaucracy from a symbolic perspective may be equally important for the performance of public organizations.

In general, contextual factors as either constructs of bureaucratic representation or their surroundings shape how representative bureaucracy affects public organizational performance. Demographic characteristics as the building blocks of representative bureaucracy determine the extent to which the increased representativeness brings changes to the public organizational performance. Those with high demographic identity salience are much less volatile than other characteristics due to their high resilience and they also attract major public concerns and result in substantial improvements in the performance of the related public organizations and programs. Frontline bureaucracy enjoys more discretion than its non-frontline counterparts, which is more likely to prevent the effectiveness of bureaucratic representation affecting public organizational performance from the detriments of various administrative burdens and political conflicts. The increased bureaucratic representativeness in aggregate affects public organizational performance more than its influence at individual level, which triggers the reexamination of the role that representative bureaucracy plays in enhancing public organizational performance at different organizational levels. No substantial difference in effects has been found between symbolic and active representation as two major mechanism of bureaucratic representation, which contradicts the asserted supremacy of active representation over symbolic representation as dominant approaches to the realized bureaucratic representativeness and advocates equal importance of the two in the inquiry of representative bureaucracy.

2.8 Conclusion

The close interaction between bureaucratic representation and public organizational performance can be reflected in the democratic processes and outcomes of increased

representativeness, more client-oriented public service delivery for the specific social groups, and broadened dimensions of performance measurement under a representative bureaucracy (Andersen et al., 2016; Moynihan et al., 2011; Selden, 1997; Slack, 2001; Walker & Andrews, 2015). However, little attention has been paid to synthesizing the conditions under which representative bureaucracies can impact on public organizational performance. This meta-analysis sought to quantitatively generalize the effects of contextual moderators on the relationship between representative bureaucracy and public organizational performance. The commonly anticipated positive association between bureaucratic representation and public organizational performance has been found in the empirical studies included in this meta-analysis. However, context matters.

This study helps to generate new theoretical insights into the how representative bureaucracies can affect public organizational performance. The postulated distinct effects of bureaucratic representation of specific demographic characteristics were empirically supported, which links the demographic identity salience with representative bureaucracy. And bureaucratic representation, as expected, was more effective at enhancing public organizational performance at the frontline rather than non-frontline levels; this finding supports the level of discretion as one major factor regarding the effects of bureaucratic representation. Moreover, representative bureaucracy contributed to overall public organizational performance more than when performance was measured at individual levels, which suggests the possible variation in the role that bureaucratic representation plays in affecting public organizational performance at different organizational levels. Surprisingly, the effects of symbolic bureaucratic representation were similar with those of active representation on improving public organizational performance, which points to the

equal status of symbolic and active representation as aspects of representative bureaucracy.

But there is still a good deal of work needed empirically and theoretically on representative bureaucracy. For example, although we found demographic salience in terms of race, ethnicity and/or gender, what are effects of representative bureaucracy with respect to multiple identities? As (Meier 2019, 46) maintains, “Because everyone has multiple identities ..., clients can match bureaucrats on zero, one, two, three, four or more identities. It is quite possible that an African-American female bureaucrat from a poor family could be more interested in assisting individuals who match up on all three of these identities than those who match up on one or two.” He suggests a number of testable hypotheses, including the following:

“Bureaucrats are more likely to act for clients if the clients’ multiple identities closely match those of the bureaucrat” and

“The impact of intersectionality on representative bureaucracy is a function of the multiple identities of both the bureaucrat and the client.”

The latter hypothesis suggests that representative bureaucracy research should focus on the intersection of race, gender, ethnicity, sexual orientation, gender identity and other markers of identity. We are slowly beginning to see more research on representativeness, for example, in terms of LGBTQ persons (see, e.g., Ng, Schweitzer & Lyons, 2012; Lewis, 2011).

The results of this work also yielded several implications for the future exploration of representative bureaucracy as it affects or interacts with public organizational performance. For example, it is necessary to acknowledge the role of frontline bureaucrats in the positive association between bureaucratic representation and public organizational

performance and fully utilize it. Compared with officials at the managerial or leadership levels, the highly discretionary street-level bureaucrats enjoy less institutional constraints and more field experience which allows them to familiarize themselves with the social identity groups they serve (Meier & Bohte, 2001; Meier et al., 1999; Sowa & Selden, 2003). This is the key to an effective representative bureaucracy and further to high-performing public organizations/programs. It is obvious that bureaucratic discretion alone is not conducive to representativeness. The effects of bureaucratic representation can be mitigated by the inconsistency between the shared values generated from representativeness and the values through which organizational socialization affects frontline workers (Grissom & Keiser, 2011; Hong, 2016, 2017b).

In addition, it is worth reconsidering representative bureaucracy as moderator or direct predictor to enhance public organizational performance at different levels. The hypothesized difference between performance at the organizational and the individual level as affected by representative bureaucracy was not empirically supported among the effect sizes, which suggests that the improvement on individual performance as result of increased bureaucratic representativeness might be directly reflected in enhanced performance overall at the organizational level. If the effects of bureaucratic representation as perceived by the individuals within organization is similar to what can be demonstrated at organizational level, then representative bureaucracy might not be a significant factor affecting public organizational performance. This is because other behavioral, organizational and institutional mechanisms that can affect public organizations as a whole have been discovered to affect performance (e.g., as noted coproduction and institutional isomorphism), which might partly replace the effects of representative bureaucracy if it is

found to be a major predictor of performance (Alford, 2002; Hong, 2016; Ostrom et al., 1979). Thus, the role that representative bureaucracy plays in influencing the public organizational performance as direct indicators or indirect moderators needs to be scrutinized in the further research. This can effectively improve interpretation of the importance of representative bureaucracy to organizational performance in the public sector as a consequence of the actual causal relationship between representative bureaucracy and performance. In any case, as Meier (2019) acknowledges, further investigation into the micro-theory behind individual actions of bureaucrats are needed and can provide insights for scholars. Questions such as who do bureaucrats represent, why do they represent and what are the values being represented remain.

Finally, the importance of research on symbolic representation cannot be overstated. Active representation certainly indicates how representative bureaucracy can affect public organizational performance, given bureaucratic discretion and policy involvement as prerequisites. However, the results in this meta-analysis found that symbolic representation may be just as effective in enhancing organizational performance. This suggests that the direct or concrete participation of bureaucratic representatives might not be a “one-size-fits-all” precondition for the positive affect of representative bureaucracy on public organizational performance. Thus, additional research on the effect of symbolic representation in various contexts on organizational performance is warranted.

Despite the valuable insights provided here, this study is not without limitations. First, the studies included in the meta-analysis are dominated by studies from the U.S. and countries with similar diverse demographic compositions (e.g., western European countries), since there are too few representative bureaucracy studies in the contexts of

nation-states (e.g., there was one study each on China, Ghana, Korea, Kuwait and Malaysia). As a result, a small number of nation-state studies prevent us from comparing multicultural-state findings with nation-state findings. Indeed, it has been argued that institutional differentiation does affect the status of bureaucratic representation and can further impact performance (Andrews et al., 2016). Thus, future research can examine whether national context would change the bureaucratic representation-organizational performance relationship. Second, given that most studies included in the analysis rely on cross-sectional data, the usual caveats related to cross-sectional analysis apply to the results of the current meta-analysis. In particular, our results might be best understood as correlative rather than causal relationships. Third, the contextual moderators included in the analysis could not exhaust all the potential moderators, since meta-analyses mostly examine the factors that are dichotomous and representative in existing studies. For instance, out of 80 primary studies included in our meta-analysis, 22 studies employ efficiency measures of performance, which seemed plausible for consideration for comparison with studies with/without efficiency measures of performance. However, such a dichotomy can hardly yield any substantial implications for the interaction between bureaucratic representation and public organizational performance in that the assumed non-efficiency category includes heterogeneous dimensions of performance measures such as effectiveness and equity perspectives, which can still be separable. Finally, although our study sample is quite diverse, our sample size does not enable us to control for other potential study characteristics.

Despite these limitations, additional empirical inquiries will certainly emerge, thus allowing for a comparison of different performance measures which will be useful for

providing potential avenues for further exploration on the relationship between bureaucratic representation and public organizational performance. As the studies on bureaucratic representation and organizational performance continue to evolve over time, it is reasonable to expect that future research will include more conditions which can further advance our knowledge.

2.9 References

(articles with asterisks were used for the meta-analysis)

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Chapter 3

How does diversity affect public organizational performance?

A meta-analysis

3.1 Abstract

Research in public administration examining the effects of diversity on public organizational performance has produced mixed results. However, the lack of a comprehensive theoretical framework has failed to provide an explanation for the mixed diversity effects. This study introduces a systematic analytical model, Categorization-Elaboration Model (CEM), to help identify the contextual constructs which can promote the positive effects of diversity on public organizational performance. A meta-analysis is conducted on 37 quantitative studies to test the empirical validity of a CEM constructed theoretical model with 253 effect sizes which will promote a better understanding of the circumstances or contexts that lead to the benefits of diversity within public sector organizations. The empirical results of meta-regression point to the appropriate range of contextual factors which can alleviate the potential negative effects of diversity and promote its overall positive effects.

3.2 Introduction

Despite the increase in relevant studies, the impact of diversity on public organizational performance has produced mixed results. In many cases, diversity in the composition of public employees has contributed positively to the operations of public organizations, as suggested in studies of representative bureaucracy (e.g., Nicholson-Crotty

et al., 2017; Meier, & Nicholson-Crotty, 2006; Andrews et. al., 2005; Wise & Tschirhart, 2000; Riccucci, 2021), organizational networking capability (e.g., Owens & Kukla-Acevedo, 2012; Jackson & Joshi, 2004), organizational accountability (e.g., Gazley et al., 2010; Tomlinson & Schwabenland, 2010), innovations (e.g., Muchiri & Ayoko, 2013; Choi et al., 2018) and organizational inclusion (Sabharwal, 2014; Andrews et al., 2014). However, under different circumstances, some studies have found that diversity in public workforces may compromise public organizational outcomes, as evidenced by failed agreements on decision-making (e.g., Jehn et al., 1999), communication costs (e.g., Owens & Kukla-Acevedo, 2010), and low organizational commitments from marginalized identity subgroups (Ritz & Alfes, 2017; Moon, 2018). The highly context-specific diversity effects on public organizational outcomes implies that it is necessary to conduct a systematic analysis on the contextual constructs shaping the configurations of diversity effects on performance.

A comprehensive, unified theoretical framework would assist in this analysis by helping to identify potential contextual concepts which might lead to diversity's positive effects on organizational performance. Earlier studies have attempted to synthesize different theories, but CEM seeks to incorporate the premises or underpinnings of existing relevant theories. In effect, every potential moderator in the studies included here may not be fully captured.

With one exception, public administration research on diversity has not been theory driven. Some research conducted in the private sector, on the other hand, has applied social categorization theory or social identity theory (see e.g., Tajfel, 1979; 1982; Tajfel & Turner, 1986; Tajfel et. al., 1971), and others have applied optimal distinctiveness theory.

The former refers to how individuals separate themselves into groups based on race, ethnicity, gender and other characteristics and the latter which is an extension of social identity theory (Brewer, 2012), refers to individuals' needs to be both similar and different from others. Sabharwal (2014) is the one study which applies social identity theory and social comparison theory (i.e., where individuals compare their own skills and abilities to those of others), to public agencies to determine the impact of diversity on performance.⁹ But as she prudently points out, "no unified theory of inclusion exists," and therefore, scholars have instead pulled together other theories such as social categorization to investigate the effects of diversity on workplace performance (Sabharwal, 2014, p. 198).

Moreover, extant studies found several positive effects from diversity when it was well managed, including, for example, inclusivity, or valuing, incorporating and protecting the voices and perspectives of diverse identity subgroups; mentoring; diversity in leadership teams; establishing clear goals and monitoring progress around diversity goals; prioritizing those goals, and holding leaders and managers responsible and accountable for goal attainment (e.g., Sabharwal 2014; Guy & Newman 2010; Choi & Rainy, 2010; Park & Liang, 2020; Ashikali & Groeneveld, 2015; Rutherford, 2016). For a comprehensive understanding of diversity-performance relationships in public organizational settings and to attain effective diversity management policies and strategies, it is imperative for public administration to apply a unified, comprehensive theory that addresses the varying effects of diversity on public organizational outcomes.

In this study, the Categorization-Elaboration Model (CEM) will be introduced, a

⁹ Sabharwal (2014) finds that diversity management by itself is insufficient to improve organizational performance. She points out that key to diversity's positive effects is supportive leadership, which empowers employees and is inclusive of their opinions and views. Our research may fill in gaps here.

model which is frequently used to examine diversity-performance relationships in the nonpublic sphere (e.g. van Knippenberg et al., 2004; Guillaume et al., 2017; Pieterse et al., 2013). Its application may more fully explain diversity-performance relationships that account for contextuality in the public sector. To a certain extent, this research seeks to discover the potential applicability of CEM to public sector workforces. It seeks to complement the application of alternative theories to existing research in the private sector.

The purpose of this research is to explain the varying effects of diversity on public organization performance under the framework of CEM to better understand the circumstances or contexts that lead to the public organizational benefits of diversity. Specifically, the research conducts a meta-analysis on 37 quantitative studies to test the empirical validity of a CEM constructed theoretical model with 253 effect sizes. The current research contributes to both the practice and the development of theory for studying diversity management in public administration in at least three ways. First, the meta-analysis summarizes the empirical findings of the current literature on diversity-performance relationships in public organizational settings, which provides directions for future research. More importantly, by applying CEM to public organizational settings, this study provides a theoretical model that systematically describes the multidimensionality of diversity effects on public organizational performance. Additionally, the empirical results of meta-regression are suggestive of the appropriate range of contextual factors which can alleviate the potential negative effects of diversity and promote its overall positive effects. However, it should be noted at the outset that there is a paucity of diversity management studies from countries outside the U.S. It must be recognized that organizational behavior is contextual and national culture prescribes many of the biases that are manifested in the

workplace. The workplace in China, for example, is different from America's and a Philippine work setting would be very different from South Africa's.

3.3 How Diversity Can Impact Public Organizational Performance

As noted, a good deal of research indicates that diversity in organizational composition, when effectively managed, is likely to positively contribute to public organizational performance, in terms of, for example, responsiveness to the citizenry, governance capacity and accountability. These studies generally rely on demographic variables to measure diversity (see, e.g., Sabharwal et al., 2018; Choi & Rainey, 2010; Opstrup & Villadsen, 2015; Muchiri & Ayoko, 2013; Owens & Kukla-Acevedo, 2012; Shibeshi, 2012; Gazley et al. 2010; Pitts, 2009; Pitts & Jarry, 2009; 2007; Soni, 2000). More recently, the research on diversity has focused on DEI, or diversity, equity and inclusion, which points to the importance of managing diversity to ensure inclusiveness of diverse voices and to promote equity in the workplace (see, e.g., Guy & McCandless, 2020; 2012; Naff & Kellough, 2003). In this sense, it calls for “public organizations to be leaders in creating inclusive organizations where cultures of all groups not only coexist but thrive” (Nelson & Piatak, 2021, 295).

However, some research has pointed to the potential negative effects of diversity, particularly if it is not effectively managed. Studies in the private sector, for example, have shown that diversified workforces could generate conflicts stemming from differences in social identification and values, which may hinder the organizations' decision-making processes (see, e.g., Jehn et al., 1999). Similarly in the setting of public organizations, Owens and Kukla-Acevedo (2012) found that public managers in racially heterogeneous

school districts spend more time mediating the network of diverse clientele than those in racially homogenous school districts, which resulted in relatively lower performance for the heterogeneous school districts compared to those that were homogeneous.

Other studies have suggested that diversity might be detrimental to the basic functioning of public organizations in their efforts to promote agreements on organizational values and to address uncertainty (see, e.g., Miller & Triana, 2009). Conflicting voices of diverse identity subgroups within work settings, if not well-managed, could complicate the ability of managers to synthesize and include the array of voices (Sabharwal, 2014).

In short, the benefits of diversity to public organizational performance have been well-illustrated in the literature of public administration, as well as its potential costs and challenges. However, the mixed findings in the empirical research might be of limited value because most studies focus on the effects of diversity from the standpoint of only demographic categories, which ignores specific demographic and managerial constructs that contextualize and moderate the performance effects of diversity. Thus, in order to better understand the impact of diversity on public organizational performance, it is important to explore the contextual determinants which promote, or conversely mitigate diversity benefits to public organizational performance.

3.4 The Multidimensionality of Diversity Effects: Categorization-Elaboration Model

With respect to existing research, demographics in terms of personnel was the construct used most frequently to identify different dimensions of diversity effects, but even here, no empirical tests of these analytical frameworks were conducted (see, e.g., Ali & Ayoko, 2014; Ritz & Alfes, 2018; Cox, 1993; Larkey, 1996; Mazneski, 1994; Pelled,

1996). In these studies, diversity was empirically defined as demographic differences between or among group members characterized by race, ethnicity, gender, language, and nationality, which indicates a demographic perspective of diversity constructs (Colquitt et al., 2002, Earley & Mosakowski, 2000; Milliken & Martins, 1996; Cummings et al., 1993). In addition to a demographics, organizational characteristics such as goals, leadership, recruitment, inclusivity and incentive mechanisms are also considered as contributing factors to increasing organizational diversity, which shape diversity effects under specific managerial designs (Sabharwal, 2014; Groeneveld & Verbeek, 2012; Guy et al., 2010; Von Bergen et al., 2002). Yet, existing research tends to identify the effects of diversity as it varies across different demographic categories and organizational contexts, with few accounts for why diversity functions differently in organizational settings (Joshi & Roh, 2009; Jehn et al., 1999; Thomas & Ely, 1996).

The categorization-elaboration model (CEM), as first proposed by van Knippenberg, De Dreu and Homan (2004), seeks to provide an explanation for the link between diversity and group or organizational performance by determining the moderating effects of diversity. As van Knippenberg, De Dreu and Homan (2004, p. 1008) point out, “research on the positive and negative effects of work-group diversity has largely developed in separate research traditions, and an integrative theoretical framework from which to understand the effects of diversity on group performance is missing” (also see, Williams & O’Reilly, 1998).

The CEM model has two major components: “social categorization” and “information elaboration.” The former refers the difference in people’s propensities to prefer to work with and categorize themselves as part of one’s own in-group (“us”) versus

the out-group (“them”) along demographic lines such as race, ethnicity or gender (see, e.g., Sabharwal, 2014; Guy & Newman 2010; Haslam et al., 2010; Jackson et al., 1995). The effects of diversity from this perspective tend to be negative due to intergroup biases that develop along racial, ethnic or gender lines. Moreover, as van Knippenberg, De Dreu & Homan (2004, p. 1014) point out, workers develop a sort of identity salience whereby they perceive their own group as more prominent and significant as compared to others.

CEM’s other component, information elaboration, refers to the exchange, discussion, and integration of task-relevant information and perspectives through verbal communication (van Knippenberg et al., 2004).¹⁰ The benefits of social or cultural diversity arise from the extent to which diversity generates information elaboration. That is, it allows diverse teams to enhance their performance by transforming their knowledge into actionable solutions to complex problems (see, e.g., Resick et. al., 2014). This feature of CEM is thus viewed as technical or instrumental as it focuses on tasks (van Knippenberg et al., 2011). In short, CEM suggests that diversity in groups or organizations will potentially increase the exchange, communication and elaboration of task-relevant information, which ultimately leads to higher creativity and productivity. Although intergroup biases can limit the efficacy of these elaboration processes, the expectation under CEM is that managerial efforts will ease intergroup biases, thus leading to increased organizational performance (see, e.g., Gazley et al., 2010; Thomas & Ely, 1996; Cox & Blake, 1991).

¹⁰ Although there has not been a universal definition of organizational communication, in its simplest form it is defined by organization theorists such as Conrad and Poole (2012) as communication that occurs within organizations, with communication generally defined as the process through which the use of verbal and nonverbal signs and symbols occur. Thus, verbal communication that achieves information elaboration is referred to as one form of organizational communication.

As a model or theory to identify different constructs of diversity effects, CEM speculates the directions of diversity effects from the different perspectives, i.e., the negative effects of diversity caused by social categorization from a social system, and the positive effects of diversity through information elaboration from a technical system. Moreover, CEM has been well supported by empirical evidence (see, e.g., Guillaume et al., 2017; Pieterse et al., 2013; van Knippenberg et al., 2004).

3.5 Contextual determinants and Hypotheses

Contextual determinants of the relationship between diversity and public organizational performance emanate from social categorization and information elaboration, as discussed earlier. These factors inform our hypotheses.

3.5.1 Contingencies of social categorization

CEM makes it possible to separate the factors that positively affect the interaction between diversity and public organizational performance from those which have negative moderating effects. The potential negative impact arising from social categorization can be attributed to identity salience, whereby some subgroups are dominant and others become subordinate, marginalized or disadvantaged. Such a discriminating effect can manifest as a result of two mechanisms: dominance in physical presence and stereotype consensus.¹¹

Dominance in physical presence of identity subgroups (i.e., large or majority numbers) within the workforce allows certain groups to firmly hold their major stake within organizations. In the context of the U.S., for instance, the dominant subgroup (i.e., White)

¹¹ Stereotype consensus is derived from the self-categorization component of CEM. It suggests that this consensus is produced by shared social identification and collectively coordinated, even if unconsciously, perceptions and behaviors (see, e.g., Haslam et al., 1999).

is able to firmly hold their power and influence within organizations and marginalize other subgroups (e.g., Blacks, Latinx and Indigenous Americans; see, Randel, 2002). In effect, the voices and interests of these marginalized subgroups are silenced and excluded, thereby limiting the potential of the *entire* body of public workers to solve complex issues and positively impact organizational performance (e.g., Park, 2020; Sabharwal, 2014; King et al., 2011). Thus, the following hypotheses are offered:

H1: The social categorization process as defined by demographic characteristics negatively moderates the interaction between diversity and public organizational performance.

H1A: The existence of identity subgroups within the dominant population (Whites) negatively moderates the effects of diversity on public organizational performance.

In addition, identity salience might also lead to a “stereotype consensus” toward certain subgroups, which further causes the interests of socially marginalized or disadvantaged subgroups to be ignored. As indicated in the psychology literature, identity salience offers a cognitive basis for shared perceptions, judgments and collective actions, which further marginalizes and excludes identity subgroups deemed insignificant by the major groups (Haslam et al., 1999; Simon & Hamilton, 1994). White women and workers of color often receive substandard treatment compared to White men, due to stereotype consensus (Chattopadhyay et al., 2004). Such unequal treatment leads to poor organizational morale and low self-esteem for White women and workers of color (Chattopadhyay, 2003). In addition, intergroup communication is adversely affected by negative stereotype consensus; in effect, the voices of White women and workers of color will always be marginalized and excluded (Sabharwal, 2014; Pettigrew, 1998). Based on

the research, the following hypothesis is offered:

H1B: Stereotype consensus toward certain subgroups within diverse workforces negatively moderates the effects of diversity on public organizational performance

3.5.2 Contingencies of information elaboration

Through the mechanism of information elaboration, the diversity effect refers to the extent to which group or organization members respond to each other's contributions and elaborate on them. CEM suggests that diversity in groups or organizations will increase elaboration of task-relevant information, which ultimately leads to higher creativity. Although intergroup biases can limit the efficacy of these elaboration processes, the expectation under CEM is that managerial efforts will be able to ease intergroup biases and foster the mechanism of information elaboration, thus leading to increased organizational performance (see, e.g., Gazley et al., 2010). In this sense, managerial strategies that increase access to organizational resources and promote organizational learning and integration can bring social equity and fairness to the organizational setting, which enables demographic diversity to be a strategic advantage for the organization (Thomas & Ely, 1996; Cox & Blake, 1991).

Thus, specific diversity management strategies identified in the literature of diversity and its management are likely to positively moderate the relationship between diversity and public organizational performance. First, a diversity-friendly leadership style can mitigate the conflicts between individual social identity subgroups through effective communication, coordination and guidance to ultimately facilitate the information elaboration processes (Nishii & Mayer, 2009; Greer et al., 2012; Andersen & Moynihan,

2016).¹² In addition, diversity-friendly leadership styles such as inclusive and transformational were found to not only promote organizational goal alignments for better cooperation and value integration in diverse workforces, but to also foster inclusive work environments (Guillaume et al., 2017; Randel et al., 2018; Randel et al., 2016; Ashikali et al., 2020; Pitts et al., 2010). As such, the following hypotheses are offered:

H2: The information elaboration process emanating from particular diversity management strategies positively moderates the relationship between diversity and public organizational performance

H2A: Diversity-friendly leadership styles positively moderate the effects of diversity on public organizational performance

In addition, inclusive and fair organizational climates and cultures contribute to the diversity-performance relationship by inhibiting social categorization and promoting information elaboration (Weisinger et al., 2017; Sabharwal, 2014). Inclusive and open organizational climates or culture help to overcome the negative effects from social categorization by embracing the values of different identity subgroups within the organization (e.g., Chatman & Spataro, 2005; Goncalo et al., 2015; Ajeigbe, 2019). This not only increases the opportunities for collaboration, exchange of ideas and innovation, but it can also increase public employees' job satisfaction (Avery & McKay, 2010). Thus, the following hypothesis is offered:

H2B: Diversity-friendly organizational climates/cultures positively moderate the effects of diversity on public organizational performance

¹² Instances describing the functions of diversity-friendly leadership in the business management literature include offering platforms for information sharing (Buyl et al., 2011), fostering unified organizational values to overcome intergroup bias (Kearney & Gebert, 2009), and developing inclusive and respectful leadership styles (Somech, 2006).

Training programs provided by organizations can also be beneficial to developing information elaboration. Diversity-oriented training programs have been found to mitigate prejudice towards specific identity groups and facilitate positive attitudes toward culture and value differences which eventually leads to consensus across multiple identity subgroups within organizations (Sabharwal, 2014; Bezrukova, Jehn, & Spell, 2012; Bezrukova, Spell, Perry, & Jehn, 2016). Through supportive diversity training programs, socially marginalized groups can improve their status and power of voice within organizations, which also helps to increase internal accountability and overall performance (Arai & Shockley-Zalabak, 2001; Kulik & Roberson, 2008). Based on existing research, the following hypothesis is offered:

H2C: Diversity training programs can positively moderate the effects of diversity on public organizational performance

Additionally, certain internal organizational policies oriented towards procedural or organizational justice are likely to contribute to the positive effects of diversity on public organizational performance. Defined as “the fairness of the means by which an allocation decision is made” (Greenberg, 2002, p. 123) procedural justice is central to successful inclusion processes in organizations (Rubin & Alteri, 2019; Fischer et al., 2011). It allows individuals to be highly aware of their inclusion in organizations, which can increase job satisfaction and commitment to the organization, and ultimately enhance their contributions to overall effective organizational performance (Langbein & Stazyk, 2013; Fischer et al., 2011; Kim & Park, 2017; Colquitt, 2001; Cohen-Charash & Spector, 2001; Carrell & Dittrich, 1978). Thus, the following hypothesis is offered:

H2D: Procedural and/or organizational justice policies can positively moderate the effects

of diversity on public organizational performance

Figure 3.1 CEM and Diversity-Performance Relationship in Public Organizations

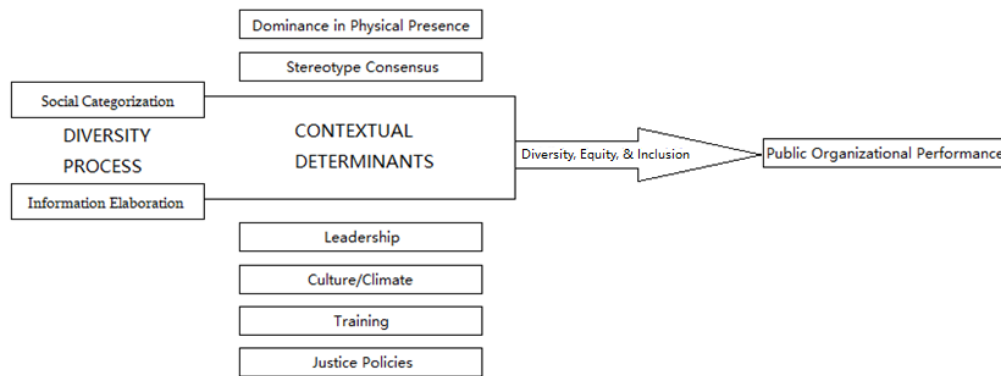


Figure 3.1 summarizes how the relationship between diversity and public organizational performance along with its contextual moderators is explained by CEM.

3.6 Data and Method

Meta-analysis is conducted in this study to examine the effect of diversity on public organizational performance and the contextual factors moderating the relationship. Meta-analysis statistically examines the empirical results throughout all possible existing quantitative studies in order to generalize the research findings on the specific relationships at issue (Glass, 1976). Following its applications in other fields such as psychology and business management, meta-analyses have been greatly relied upon to explore research questions in public administration (see, e.g., Ding et al., 2021; George et al., 2019; Harari, Herst et al., 2017; Homberg et al., 2015; Lu, 2018).

Compared with conventional literature reviews, meta-analysis provides more possibilities for generalizations based on large scale literatures (Ringquist, 2013). It enables researchers to quantitatively aggregate the findings from primary studies to form coherent results that are generalizable across existing literature. Moreover, it can assist in advancing

theories in that it collects all possible results from different empirical settings. In sum, meta-analysis allows us to not only summarize the findings in existing studies on the relationship between diversity and public organizational performance, but also identify the effects of contextual factors constructed from CEM on such an interaction.¹³

3.6.1 Literature Search and Inclusion Criteria

The meta-analysis began with a systematic search of literature on the effects of diversity on public organizational performance. Three search strategies, for the purpose of inclusiveness, were employed to identify relevant literature following the best practices suggested by Reed and Baxter (2009) and Ringquist (2013). First, using three academic databases such as EBSCO (for peer-reviewed journal articles), Web of Science (for peer-reviewed journal articles), and ProQuest (for dissertations), all eligible articles with “diversity AND performance AND public organization”, “diversity AND performance AND public management”, or “diversity AND performance AND public service” in the title, abstract, or full text were included. Second, the search was repeated using Google Scholar¹⁴ on the newly published and highly cited academic works referenced and those references which shared the same keywords in the searching scheme of database records were added. Third, since diversity management has also been assumed vital to bureaucratic representation (e.g., Selden, 1997; Groeneveld & Van de Walle, 2010), for any missing articles in the first two stages, this study also checked the “Representative Bureaucracy Database” compiled through the Project for Equity, Representation and Governance,

¹³ The logic for constructing our contextual moderators draws on recent meta-analyses such as “Meta-analysis of collaboration and performance: Moderating tests of sectoral differences in collaborative performance” (Lee & Hung, 2022) and “Does strategic planning improve organizational performance? A meta-analysis” (George et al., 2019).

¹⁴ Google Scholar provides a comprehensive coverage of scholarly literature in a variety of publishing formats such as journal articles, books, book chapters, and conference papers. The reliance on Google Scholar in the search allowed us to reach a diverse set of studies.

directed by Kenneth J. Meier (Project for Equity, Representation and Governance, 2018). The literature search was conducted in September of 2020 and a sum of 497 articles were collected.

These collected articles were also screened as follows to identify those eligible for the present meta-analysis. We first reviewed the abstracts of the collected articles and identified 497 potentially relevant studies. We then performed full-text reviews, using the following four inclusion criteria. First, the focal predictor, *diversity*, should be operationalized as demographic diversity in the eligible studies. Students of public management tend to frame diversity inspired by representative bureaucracy, as reflected by the focus of empirical studies on the variance in demographic factors of representation such as race, ethnicity, age, and gender (Meier, 2019). Diversity is measured most frequently via three approaches, including the coefficient of variation, the Blau index of heterogeneity, and the entropy index of diversity. Specifically, a coefficient of variation is used for continuous variables such as age and tenure, and both the Blau index and entropy index are suitable to measure categorical variables such as gender, race/ethnicity, and functional and educational background (e.g., Miller & Quigley, 1990; Bantel & Jackson 1989; Jackson et al., 1991)¹⁵. We followed this practice in the present analysis.

Second, the dependent variable, *organizational performance*, tends to be operationalized in the literature of diversity through the approaches that parallel those in the literature of representative bureaucracy. In this sense, public organizational performance in diversity management studies includes not only what has been

¹⁵ We also specified moderators for the three diversity measures. There are 18 articles using variation coefficients, 16 using Blau index, 3 using entropy index. However, we did not find significant effects from any of these measures, and their inclusion did not distort the moderating effects of other contextual factors. See Appendix A for the results of robustness check.

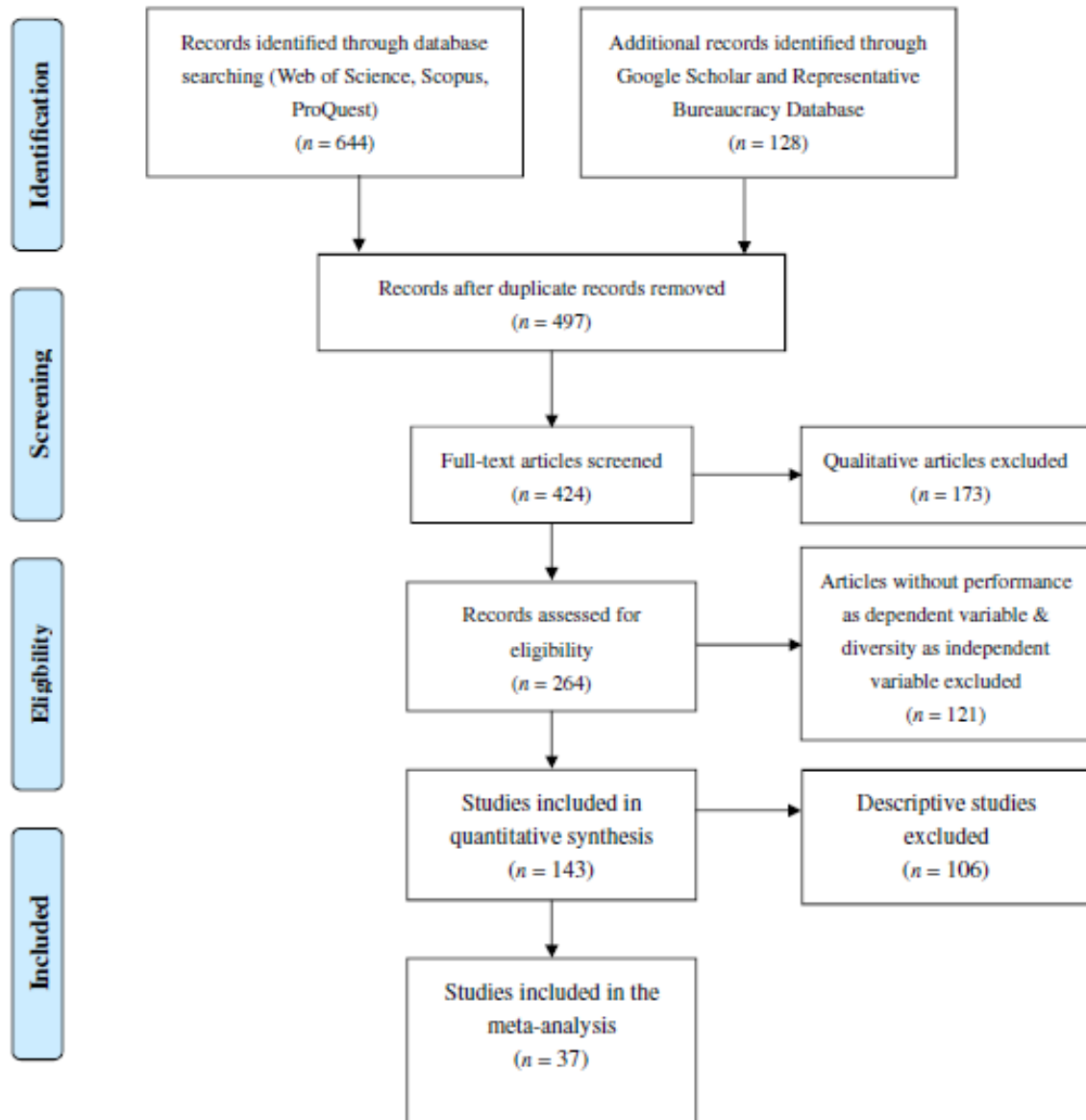
conventionally constructed in terms of “efficiency” and “effectiveness,” but also the organizational outcome of democratic processes as “equity” (e.g., Andersen et al., 2016; Boyne et al., 2010; Fernandez & Lee, 2016; Walker & Andrews, 2015). Moreover, apart from the conventional measures of public organizational outcome such as task performance and goal achievement (e.g., Fernandez & Lee, 2016; Andrews et al., 2016; Andrews & Ashworth, 2015; Choi & Rainy, 2010; Portillo & DeHart-Davis, 2009), there has been an increasing number of studies focusing on diversity-affected public organizational performance from a broader perspective including client satisfaction, reduced inequity, and resource distribution (e.g., Oberfield, 2014; Choi, 2013; Gates & Mark, 2012). We thus adopted this broader treatment, which also enhances the external validity of our analysis.¹⁶

Third, studies with only descriptive statistical results or without correlation coefficients or *t*-statistics were eliminated since they lack information to generate effect sizes. Based on such a refined full-text review, 37 studies met the inclusion criteria and thus serve as our final sample for the meta-analysis. These 37 studies include 34 published studies and 3 unpublished studies (“grey studies”).¹⁷ The PRISMA flow diagram describing the detailed procedures of the literature search is presented in Figure 3.2.

¹⁶ As for organizational performance, 8 articles focused on effectiveness, 21 on efficiency, 2 on representation, 2 on equity, and 4 on multiple dimensions. As a performance dimension which is different from diversity, representation was measured by the treatment of certain socially disadvantaged groups in public service organizations such as promotion of workers of color and of women (e.g., Naff & Kellough, 2015). We followed the coding procedure of published meta-analysis articles in *Public Administration Review* to measure these dimensions; see the operation of literature searches and coding in articles such as “How bureaucratic representation affects public organizational performance: A meta-analysis” and “Does strategic planning improve organizational performance? A meta-analysis.” We also specified moderators for these performance dimensions but we did not find significant effects from any of these measures, and their inclusion did not distort the moderating effects of other contextual factors. See Appendix A for the results of robustness check.

¹⁷ We followed the traditional practice to consider a study that is not published in a peer-reviewed academic journal as unpublished or grey literature (Rothstein & Hopewell, 2009).

Figure 3.2 PRISMA Flow Diagram (2020.9.4)



3.6.2 Coding Procedures

Next, we extracted and coded information from the selected studies. Two categories of information were coded in the synthesis—effect size and moderator (Lipsey, 2009).

The present study calculated correlation-based (r -based) effect sizes to describe the standardized associations between the focal predictor *diversity* and the dependent variable *public organizational performance*. The correlation coefficient r , if not provided in the

primary study, was calculated using the following equation: $r = \sqrt{\frac{t^2}{t^2 + df}}$, where t is the t -score testing the null hypothesis that the population correlation $Rho = 0$, and df is the degrees of freedom.

Since the effects in some primary studies were either generated from non-linear correlation or with more complex conditions to generate r , we implemented several modification strategies, following the suggestions from Hedges (2009) and Ringquist (2013). Some studies explore the relationship between diversity and public organizational performance through a mean comparison technique so that the group-difference-based effect sizes (Cohen's d) were first calculated based on either the mean difference (including regression coefficients of dummy variables) or a t -statistic and then transformed into r . Another group of primary studies specified the dependent variable—i.e., public organizational performance—into dummy variables; therefore, odds-based effect sizes were first adopted and then converted into r . Additionally, t scores or z scores at the corresponding symbol levels of significance were introduced to estimate the values of r for the effect sizes in studies only reporting regression coefficients with significant levels using asterisks. This allows more effect sizes as well as studies to be included despite the resulting underestimation from using the benchmark values at different significance levels, which increases the inclusivity and thus generalizability of the meta-analysis. Lastly, the effect sizes for correlations only reporting statistical insignificance were coded 0.

Moreover, in studies containing multiple effect sizes, the r of all the effect sizes were calculated to maintain the within-study variation. Further, in order to correct the small bias associated with correlation coefficient r , Fisher's z was applied to represent the correlation-based effect sizes and was calculated using the following equation: $Z_r =$

$0.5 \ln \left[\frac{1+r}{1-r} \right]$, with variance $V[Z_r] = \frac{1}{(n-3)}$. Finally, 253 effect sizes were drawn from 37 primary studies.

To affirm the hypotheses related to the contextual factors affecting the relationship between diversity and public organizational performance, the moderators of the diversity-performance correlations in the primary literature were specified according to information from both research design and the empirical settings. Specifically, six dichotomous moderators were generated based on the CEM hypotheses stated above. From the perspective of social categorization, *dominance in physical presence* was coded as 1 when the value of diversity measures was greater than the median of the group of all diversity measures (including variation coefficient, Blau index, and entropy index) queuing from 0 to 1, with the rest coded 0; *stereotype consensus* was coded 1 for the identification of discrimination and inequity towards specific demographic groups examined in individual articles as diversity constructs while the others were coded 0. Similarly, from the perspective of information elaboration, *diversity-friendly leadership*, *climate/culture*, *diversity-related training*, and *organizational/procedural justice policy* were manually coded as four dummy variables based on the original description of the empirical settings in the individual studies. Specifically, diversity-friendly leadership refers to the leadership illustrated to embrace diversity in the public workforce; diversity culture/climate were identified based on whether there were shared perceptions or understanding about recognizing and appreciating individual differences across public employees as recorded in the empirical contexts; diversity-related training programs encompassed any training programs that helped foster diversity, equity and inclusion (DEI) mentioned as background information of the empirical inquires; and organizational/procedural justice policies

included any internal policies ensuring the justice during the operation of public organizations. Table 3.1 provides the distribution of these moderators within our sample.

Table 3.1 Distribution of Moderators within the Sample

Contextual Moderators	Study-level Distribution	Effect Size-level Distribution
Dominance in Physical Presence	54.05%	54.94%
Stereotype Consensus	48.65%	58.10%
Leadership	78.38%	58.50%
Culture/Climate	81.08%	64.82%
Training	72.97%	60.08%
Organizational Justice Policy	70.27%	57.31%

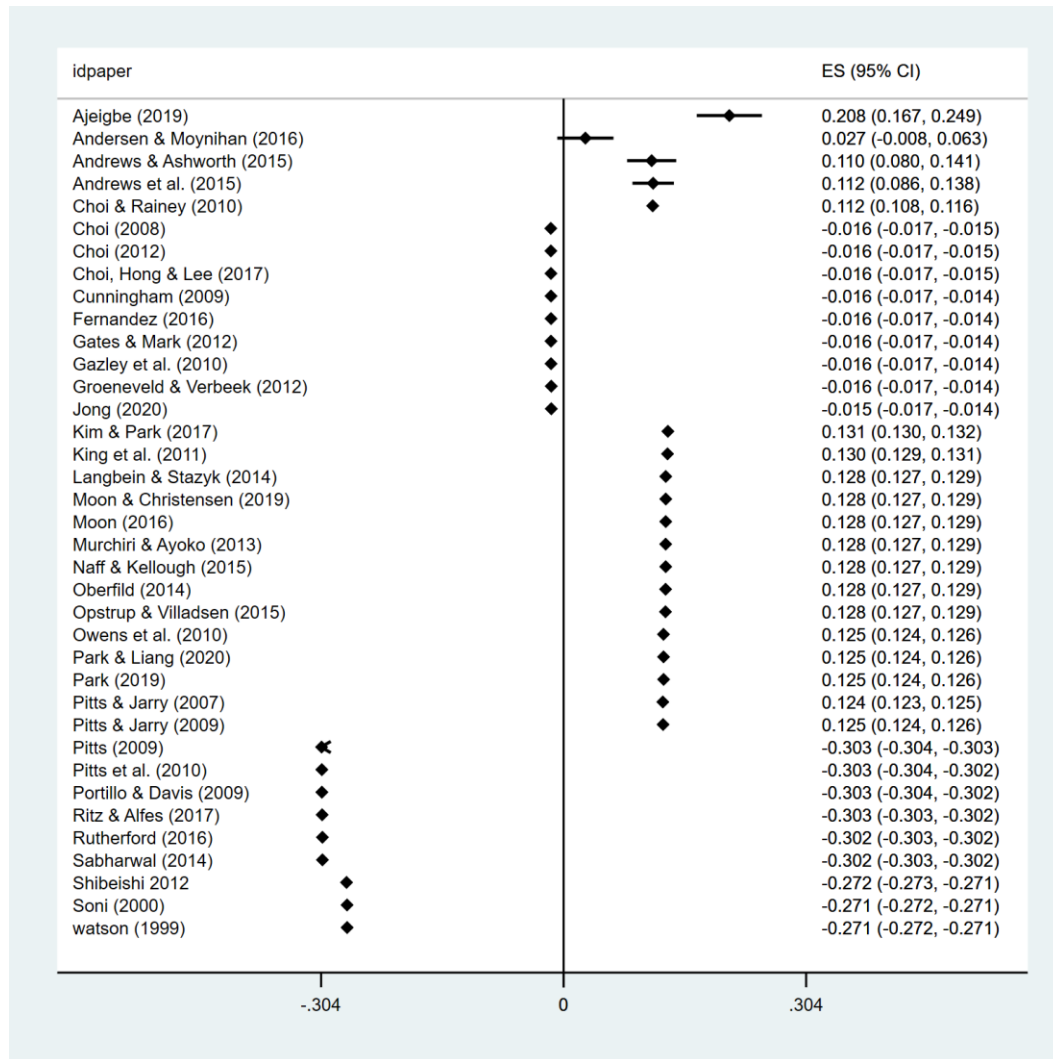
Note: multiple contextual moderators can be included in one study so that the cumulative percentage does not equal to 100%.

3.7 Results

3.7.1 Average Effect Size Analysis

The mixed effects of diversity on public organizational performance, resulting from the coexistence of two diversity functions of social categorization and information elaboration, were confirmed by the distribution of the effect sizes. A total of 253 effect sizes of the relationship between diversity and public organizational performance range from -0.303 to 0.208. 146 of all the individual effect sizes demonstrated a positive association, which shows the beneficial impact of diversity on public organization performance. However, 98 effect sizes demonstrated a negative association, which implies that organizations are not effectively managing their diversity programs. The remaining 9 effect sizes yield no association between the two variables. The study-level distribution of effect sizes across the 37 studies is presented in Figure 3.3.

Figure 3.3 Distribution of Study-Level Effect Sizes across Existing Studies



The average effect size across primary studies also produced an interesting finding with respect to the relationship between diversity and organizational performance. The effect size heterogeneity was investigated through the Q -test, in order to select the appropriate calculating strategy between fixed-effects and random-effects models. The Q statistic is much greater than 3 with 252 degrees of freedom, suggesting that its corresponding p -value is smaller than 0.01. This result indicates that the null hypothesis, that the variation among the effect sizes can only be explained by sampling error, was rejected at 0.01 confidence level. Moreover, the I^2 statistic of 99.9% also implies a high level of heterogeneity across effect sizes (Higgins & Thompson, 2002). Thus, the random-

effects model was applied to generate an average effect size of 253 effect sizes from 37 studies, and the weighted average effect size in Fisher's z is 0.062. However, the 95% confidence interval of the average effect size is [-0.077, 0.202], which suggests that the null hypothesis that the average effect size is 0 cannot be rejected at 0.05 level of confidence. It is evident that apart from its merits, diversity can also neutralize public organizational performance in some cases, suggesting, as noted above, that diversity programs are not being managed effectively. Thus, the complex nature of diversity effects on public organizational performance as assumed in CEM is empirically supported by both the divergence in effect size distribution across studies and the insignificant average effect sizes (e.g., Bradbury & Kellough, 2008; Lim & Zhong, 2006; anonymous; Selden, 1997; Thomas & Ely, 1996; Wilkins & Williams, 2008).

3.7.2 Findings: Meta-Regression Analysis

Once the assumed the mixed performance impact of diversity has been affirmed, it is necessary to determine its major contextual factors. A meta-regression analysis was conducted to further evaluate the systematic variability in effect sizes created by the moderators from both perspectives of social categorization and information elaboration: dominance in physical presence, stereotype consensus, diversity-friendly leadership, diversity climate and culture, diversity-oriented training, and organizational justice policies. The regression model is specified as follows:

$$ES_i = b_0 + b_1Salience_i + b_2Stereotype_i + b_3Leadership_i + b_4Climate\&Culture_i + b_5Training_i + b_6Justice_i + b_7PublicationBias_i$$

where ES_i refers to the raw effect size in original study i in terms of Fisher's z ; for the two moderators of social categorization, $Salience_i$ refers to whether there is any

identity group dominant in physical presence (based on the calculated diversity index) in the diverse organizational setting or staff composition examined in the study (Yes=1, No=0). *Stereotype_i* refers to whether there is any identity group that is scholarly recognized as being marginalized or socially-discriminated against in the diverse organizational settings examined in the study; for the four moderators of information elaboration (Yes=1, No=0). *Leadership_i* refers to whether the public organizations under study have leaderships that have found to embrace diversity (Yes=1, No=0). *Climate&Culture_i* refers to whether the public organizations under study have diversity-friendly climates and (or) cultures (Yes=1, No=0). *Training_i* refers to whether the public organizations examined have diversity-oriented training programs (Yes=1, No=0). *Justice_i* refers to whether the public organizations examined have organizational/procedural justice policies (Yes=1, No=0), and *Publication Bias_i* refers to whether a study appeared in a peer-reviewed publication outlet (published study=1 and unpublished study =0).

The present study used modified meta-regression models to address effect size heteroscedasticity and non-independent observations. Heteroscedasticity is a major problem affecting the validity of the meta-regression results since the effect sizes were generated from studies with various sample sizes. To maintain the within-study variability, we retained all the effect sizes eligible for the meta-analysis from original studies, rather than selecting the most representative effect sizes, which may also undermine the observation independence (Ringquist, 2013). These two problems are difficult to be resolved by traditional multivariate analysis. We followed the best practices suggested by Ringquist (2013) to apply clustered robust variance estimation (CRVE) and generalized

estimating equations (GEE) to specify the meta-regression model (Ringquist, 2013). CRVE alleviated the effect of heteroscedasticity by introducing a clustered robust parameter variance–covariance matrix suggested by White (1980). And GEE maintains the contribution of studies with fewer effect sizes by downplaying the importance of number of effect sizes on regression results (Liang & Zeger, 1986). With these two strategies, the meta-regression model is more assured to estimate meta-regression parameters.

The meta-regression results using both CRVE and GEE models are presented in Table 3.2. Both models had the *F*-statistic and Wald χ^2 statistic with corresponding *p*-values smaller than 0.01, which indicated model significance. As showed in Table 3.2, the two models yield similar results.

Table 3.2 Meta-Regression of Diversity—Public Organizational Performance Relationship

Moderator	CRVE	GEE
Dominance in Physical Presence	-.3176*** (.0951)	-.2584** (.1066)
Stereotype Consensus	-.1105 (.0852)	-.2001 (.1226)
Leadership	.8039*** (.1651)	.8335*** (.1769)
Culture/Climate	-.0442 (.1416)	-.0232 (.1433)
Training	.5933** (.2532)	.5240** (.2060)
Organizational Justice Policy	-.7206*** (.2464)	-.6832*** (.2273)
Publication bias	-.0030 (.1114)	-.0090 (.1276)
Constant	-.0817 (.1798)	-.0653 (.1727)
No. of effect sizes	253	253
No. of studies	37	37
<i>F</i>	5.47***	
<i>R</i> ²	0.3459	
Wald χ^2		76.08***

Note. Robust standard errors in parentheses. CRVE=Clustered robust variance estimation; GEE=Generalized estimating equations. *significant at .1, **significant at .05, ***significant at .01.

From the perspective of social categorization, the meta-regression yields different

results for the two moderators. As assumed, the relationship between diversity and public organizational performance will be negatively moderated if there is an identity subgroup with dominance in physical presence (i.e., Whites) compared to other subgroups. In line with the hypothesis, both CRVE and GEE models demonstrated significant and negative coefficients of the variable of *Salience_i* ($b_{CRVE} = -0.3176$, $p < 0.01$; $b_{GEE} = -0.2584$, $p < 0.01$), which implies a negative moderating impact of White-dominated identity (e.g., in the U.S.) salience on the relationship between diversity and public organizational performance. This affirms, in the context of social categorization, *H1A* that when Whites are the dominant subgroup, the effect of diversity on performance will be negative, unless diversity is properly managed within the organization.

However, stereotype consensus as one source of social categorization in diverse organizational settings might not significantly determine the impact of diversity on public organizational performance. In both models, *Stereotype_i* as the coefficient of the variable representing marginalized or discriminated against social status of identity subgroup(s) is negative as expected, but it is not statistically significant ($p > 0.1$). The insignificant regression results imply that there is no significant difference in the diversity effects on public organizational performance between the diverse public workforce including identity subgroups that suffer from the consensualized stereotyping and that without such identity subgroups; in effect, *H1B* is disproved. Thus, *H1* that the social categorization process of diversity driven by identity salience negatively moderates the interaction between diversity and public organizational performance only holds when Whites are the dominant subgroup.

From the perspective of information elaboration, four regressors of moderators

yielded different results. First, the difference in effects of diversity between public organizations with and without diversity-friendly leaderships is discovered, which confirms *H2A*. In both CRVE and GEE models, *Leadership_i*, which represents the identification of public organizational leadership that embraces diversity, has a positive and significant coefficient ($b_{CRVE} = 0.5933$, $p < 0.05$; $b_{GEE} = 0.8335$, $p < 0.01$). As expected, this implies that workforce diversity in public organizations produces better outcomes when the affected public organization has diversity-friendly leadership.

Nevertheless, the moderating effect of diversity climate and (or) culture on the relationship between diversity and public organizational performance is not detected. In both meta-regression models, the coefficients of *Climate&Culture_i*, which represents the identification of diversity climate and (or) culture in the examined public organizations, are negative and not significant ($p > 0.1$). This suggests that there is no substantive difference in the diversity-performance relationship between public organizations with or without a supportive diversity climate and (or) culture; thus, *H2B* is not supported.

Similar to diversity-friendly leadership, the existence of diversity-training program(s) is found to help improve the diversity-performance relationship in public organizations. The coefficients of *Training_i* in both CRVE and GEE models are positive and significant ($b_{CRVE} = 0.0385$, $p < 0.05$; $b_{GEE} = 0.5240$, $p < 0.05$), which suggests that public organizations with diversity training programs tend to have better diversity-performance relationships than those without such programs. Thus, *H3B* is supported.

Even though the meta-regression yields a significant result, the moderating effect of organizational justice policies does not work as expected. Both models produce significant coefficients for the regressor *Justice_i* while they are negative ($b_{CRVE} = -0.7206$,

$p < 0.01$; $b_{GEE} = -0.6832$, $p < 0.01$), which implies that public organizations with organizational/procedural justice policies tend to have poorer diversity-performance relationships than those without such policies. This runs counter to what was expected in the present study, and thus, no support was found for *H2D*. In sum, based on our findings, the anticipated diversity benefits of information elaboration to the diversity-performance relationship are available only if public organizations have diversity-friendly leadership and diversity training programs.

Lastly, the modified meta-regression of present study also manages the issue of publication bias. As a frequently addressed methodological issue in meta-analysis, the systematic difference in effect sizes between published and unpublished works is likely to deviate the results of meta-analysis (Sutton, 2009). Despite the three unpublished studies (14 effect sizes) included in the meta-analysis, additional steps are needed to prove the potential publication bias. Whereas the Egger test cannot reject the null hypothesis of no publication bias ($p > 0.1$), the Begg test statistic is suggestive of significant publication bias ($p < 0.01$). Since both Egger and Begg test results could not detect how seriously publication bias may affect the meta-regression results (Ringquist, 2013), this study further compares the effect sizes from published and unpublished studies by specifying a dummy variable *Publication Bias_i*. In both CRVE and GEE models, the coefficients of publication bias indicate that effect sizes from published studies are smaller than those from unpublished studies, but the difference is barely recognizable in size ($b_{CRVE} = -0.0030$, $p < 0.01$; $b_{GEE} = -0.0090$), and is not statistically significant ($p > 0.1$). In other words, the deviating effect of unpublished studies on the effect sizes is not significant. In sum, there is little evidence that effect sizes in the diversity literature are contaminated by publication

bias.

3.8 Discussion: What Shapes the Effects of Diversity on Public Organizational Performance?

As expected in CEM, contextual factors of both diversity functions—social categorization and information elaboration—are found to significantly determine the configurations of diversity effects on public organizational performance. From the perspective of social categorization, identity salience in terms of dominance in physical presence of certain identity subgroups of the diverse workforce within the organization is likely to produce a negative impact on public organizational performance, as demonstrated by the meta-regression analysis. This indicates that dominant subgroups (e.g., White in race and Men in gender in the U.S.) in significant size hold their major stake within organizations, and in turn, marginalize and suppress the voices of other disadvantaged subgroups. In effect, salient identity subgroups (White men) marginalize the “minority” subgroups by means of overlooking their interests, values and desires (Wegge et al., 2008). Moreover, salient identity subgroups are able to establish value dominance and build what is termed “Faultline strength,”—a tendency of homogenization across subgroups within diverse workforces—which closes down the space of mutual understanding and thus leads to intraorganizational conflicts (van Knippenberg et al., 2004). In relation to our study, identity salience was empirically found to both neutralize public organizational cohesion and attenuate the voices, interests and representation of “minority” social identity groups, which places substantive threats to public organizational performance (e.g., Park, 2020; Gilad & Alon-Barkat, 2018). Again, the findings speak to the significance of diversity-

oriented training programs and diversity-friendly leadership, which help positively moderate the effects of diversity in public workforce. The findings also point to the importance of ensuring that no group dominates in terms of physical presence in public organizations.

However, the negative effect of social categorization in terms of the consensualized stereotypes toward specific identity subgroups on the diversity-performance relationship is not found in the meta-regression. There are at least two possible explanations for this. First, many effect sizes with subgroups being discriminated against possess high diversity indexes. This implies that the negative performance effect from discrimination against certain identity subgroups as a result of consensual stereotyping may be alleviated by high levels of staff diversification within the public organization (Wegge et al., 2008; Randel, 2002; Taylor et al., 1978). This suggests that stereotype consensus toward certain identity subgroups will no longer be recognizable within highly diversified workforces. Moreover, the insignificant moderating effect of stereotype consensus can be attributed to organizational identification. Public sector organizational identity is driven by promoting and advancing the public interest; this may downplay the perceived stereotypes of specific subgroups within public organizations, which also diminishes the negative effect from diverse workforces (e.g., Rawski & Conroy, 2020). Thus, the unexpected finding is also suggestive of the value of diversification and public-interest-embedded organizational identification to mitigating the negative effect of consensual stereotyping in the public organizations.

From the perspective of information elaboration, the positive direction of diversity for public organizational performance can also be explained by the significant moderating

effects of diversity-friendly leadership styles and diversity training programs. As expected, diversity-friendly leadership is found to improve the diversity-performance relationship in public organizations. As discussed previously, leadership styles embracing diversity, equity, and inclusion can drive diversity to benefit public organizational settings through building communication and information exchange (e.g., Greer et al., 2012; Nishii & Mayer, 2009).

However, an organizational culture or climate that supports diversity is not found to have substantive a positive moderating effect on the interaction between diversity and public organizational performance. The results are contrary to what has been frequently *assumed* in the literature on diversity and diversity management (e.g., Moon & Christensen, 2020; Ashikali & Groeneveld, 2015; Goncalo et al., 2014; Boehm et al. 2014; Choi, 2013). One possible reason can be the lack of mechanisms to transform the perception of diversity values into substantive mutual understanding. The lack of inquiries on such mechanisms suggests that a prototypical institutional design has not been established in the public sector for developing inclusive climates or cultures, which would construct a shared understanding of diversity, equity, and inclusion (see e.g., Sabharwal, 2014); thus, the cultural contribution of the information elaboration function of diversity to public organizational performance was not triggered.

Our findings further indicate that diversity-oriented training programs have a positive effect on diversity-performance relationships in public organizations. The conflicts and biases between individual identity subgroups within diverse populations tend to be difficult to resolve (Pieterse et al., 2013). Thus, compared with incremental socialization processes, active interventions are more likely to create mutual understandings in terms of serving the public, which helps dissipate tensions between identity subgroups in diversified

working environments, and ultimately improves organizational performance (Jong, 2019). This finding confirms the importance of active managerial interventions to ensure that the information elaboration process of diversity will produce benefits for public organizational performance.

Surprisingly, organizational or procedural justice policies seem to be counterproductive in their moderating effects on the diversity-performance relationship. Contrary to our expectations (e.g., Kim & Park, 2017; Pichler et al., 2017; Rubin & Weinberg, 2010), the meta-regression found that public organizations with organizational or procedural justice policies tend to have poorer diversity-performance relationships than those without such policies. It may be that public organizations tend to express a focus on organizational justice, but employees do not *perceive* the existence of justice. In particular, the findings suggests that there are different perceptions of procedural justice between individual identity subgroups (e.g., Nisar, 2018; Rubin & Pérez Chiqués, 2015; Choi, 2013; Walker & Brewer, 2009).¹⁸ Thus, the effectiveness of organizational justice policies to improving public organizational performance needs to be reconsidered in the context of diversity management.

3.9 Conclusion

The relationship between diversity and public organizational performance requires much more research, and CEM is a theoretical framework that could help guide this research. Previous research mostly finds that diversity can have positive or negative effects

¹⁸ This finding may reflect an endogeneity problem, in that research especially in the private sector treats equity as part of organizational justice, which would lead to simultaneous causality (see, e.g., Balassiano & Salles, 2012; Wooldridge, 2002).

but the potential negativity can be effectively managed (e.g., Choi & Rainy, 2010; Pitts, 2005; Moon, 2016; 2018). This study sought to explicitly connect the multiplicity of diversity effects on public organizational performance with CEM, which has been broadly applied in business or generic settings (van Knippenberg et al., 2004; Guillaume et al., 2017; Pieterse et al., 2013). Meta-analysis quantitatively generalized the contextual determinants of the diversity-performance relationship in public organizations. The detected divergent diversity-performance relationships indicated the coexistence of the diversity function of social categorization—shaped by the demographic status of the diverse working setting—and that of information elaboration—shaped by specific managerial designs or schemes.

The present research can significantly contribute to a theoretical framework for studying the effects of diversity and diversity management in public organizations. By introducing CEM, which draws from other social sciences disciplines, it argues that, rather than being either beneficial or detrimental, the effects of diversity on public organizational performance are the combination of the dual diversity functions of social categorization and information elaboration, which has been supported by the divergent distribution of effect sizes in the meta-analysis. This also implies the difficulty of interpreting the direct multiple effects of diversity on public organizational performance unless the conditions shaping the diversity-performance relationship are specified based on the categorization-elaboration dichotomy.

Importantly, our research suggests that demographic diversity is just the starting point of understanding diversity effects. Identifying the specific contexts that shape the different diversity impacts is very important apart from simply pointing out or describing

the original demographics that comprise diversity. CEM purports to rationalize the different effects from demographic diversity, both positive and negative, by discussing the possible mechanisms that result in the variation in diversity effects. Based on CEM, social categorization is the mechanism that generates negative diversity impacts while information elaboration generates positive diversity impacts. The goal here is to provide another useful framework for studying impact of diversity on public organizational performance. This is particularly important as the preponderance of research on diversity in public sector workforces has illustrated that the effects of diversity are ambiguous.

In terms of the practical implications of this research, it is clear that public organizations that actively encourage the exchange and integration of perspectives of diverse groups will help to increase organizational performance. In addition, effective management strategies can improve public organizational performance—those strategies include clearly identifying the governments' interests in serving the public and harnessing the power of diverse workforces to promote and help fulfill those interests. The research also shows that diversity-friendly leadership styles and diversity training programs help to improve public organizational performance.

The findings in the present study have several implications for the future inquiry. First, the contextuality of the direct diversity effects should be carefully considered before discussing the approaches of managing diversity in public organizations. As CEM suggests, the effects of diversity within organizational settings are jointly constructed by the social categorization process stemming from the demographic identity of subgroups that make up the workplace and the information elaboration process from the technical system, or the structural features of the organizations (van Knippenberg et al., 2004; Cummings, 1978, p.

626). Thus, diversity effects can be accurately described only if the major contextual factors shaping the above two processes have been determined.

Moreover, effective diversity management in the public sector *cannot* be achieved until individual contextual factors that contribute to the different diversity functions—social categorization and information elaboration—have been fully understood. The results of the advanced meta-regression in the present study can at least offer some directions for the future exploration of diversity and diversity management. From the perspective of social categorization, the significant negative moderating effect of identity salience implies that the dominance in physical presence of certain identity subgroups within diversified workplaces is a major factor that hinders the development of healthy diversity-performance relationships in public organizations (King et al., 2011; Randel, 2002). Why do dominant subgroups continue to prevail and marginalize the benefits that can be offered and provided by for other subgroups (e.g., White Male v. other ethnoracial groups in the U.S.)? How can organizations correct these imbalances? This is an area that requires further study (e.g., Rawski & Conroy, 2020; Cole et al., 2016).

From the perspective of information elaboration, it is imperative to pay special attention to the establishment of appropriate diversity management strategies or designs that will benefit diversity-performance relationships in public organizations. As this study shows, the role of leadership is critical; however, the actual leadership style that will substantively benefit diversity management has not yet been systematically defined (for partial definitions, see e.g., Buyl et al., 2011; Somech, 2006). This suggests that the current model derived from CEM requires further adjustments in order to assist public organizations in developing the particular leadership strategies that will be effective for

leading and managing diversity within the workplace.

Because our findings show that a supportive diversity culture or climate did not improve organizational performance, further research is needed to reify the substantive benefits of diversity to public organizational performance. It may be that fostering a diversity culture or climate needs to be complemented by effective diversity training programs.

Additionally, the unexpected negative impact of organizational or procedural justice policies on diversity-performance relationships suggest that, despite the narrative in the existing literature (e.g., Potipiroon & Rubin, 2016; Rubin & Weinberg, 2016), balancing organizational justice and performance in public organizations is still an important issue to explore in the future. One suggestion is to address the impact of informational justice on the diversity-performance relationship. Informational justice refers to providing accurate information to others with honesty, integrity and trustworthiness; this, in effect, helps to signal acceptance by the in-group and promotes collective esteem. It is significant in that it can be created by workers themselves as opposed to by the organization (Lee, 2021; Colquitt, 2001).

Apart from the valuable insights it provides, the present study is not without limitations. First, the usual caveats related to cross-sectional analysis cannot be eliminated from the current meta-analysis since most studies included rely on cross-sectional data. Thus, our results might be best understood as correlative rather than causal relationships. Second, comparisons of diversity-performance relationships in public organizations within different countries has not been considered in this research, in that the effect sizes were mostly extracted from studies in the U.S. and countries with similar diverse demographics

and political institutions (e.g., western European countries). There are too few diversity management studies available in countries or regions with different demographic structures and regimes (e.g., only one study each on Korea, Egypt, Turkey was included in the meta-analysis). Thus, applying the CEM to diversity studies outside the U.S. is encouraged.

Finally, the diversity-performance relationship investigated was specified based on the generic CEM in terms of its coding method, and the meta-analyses mostly examined the factors that are dichotomous and representative in the current literature; thus, the present study could not exhaust all the potential contingency factors.¹⁹ Similarly, potential moderators that were not examined in the primary studies relied upon in this meta-analysis (e.g., critical mass) were omitted. Addressing the limitations will provide additional avenues for not only the empirical testing of the highly contextualized diversity effects on public organizational performance but will also assist in developing diversity management theories which can be applied to the public sector.

3.10 References

(articles with asterisks were used for the meta-analysis)

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¹⁹ For instance, the effects of dummy variables of three diversity measures, namely variation coefficient, Blau index, and entropy index, as well as the multiple performance measurements, were not significant so that they were excluded from the final meta-regression in order to prevent autocorrelation problem.

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Chapter 4

Does Executive Leader's Partisanship Affect Bureaucratic Representation: Evidence from A Regression Discontinuity Design

4.1 Abstract

Numerous studies have investigated the potential benefits of increasing the representation of socially underrepresented groups in the public bureaucracy on public services. However, the factors that trigger such representation remain understudied. In most democratic countries, the elected leadership of the executive branch and their appointed heads of executive agencies can alter the design and operation of civil service employment, ultimately influencing the demographic composition of the public workforce. Differences in the policy attitudes toward socially underrepresented groups held by executive leaders from different political parties can have significant effects on their representation in public bureaucracies, and these impacts can be amplified by institutional pressures stemming from competition for executive leadership positions. To expand the theory of representative bureaucracy to its origins and institutional conditions, this study employs a regression discontinuity design to analyze data on state and local government employment matched with gubernatorial elections. The study finds that governor's partisanship has a significant impact on the recruitment and compensation of specific ethno-racial and gender groups in

state and local public agencies, with these impacts being further amplified by institutional pressures.

4.2 Introduction

The theory of representative bureaucracy highlights the importance of demographic representation in achieving democratic outcomes through representative public service delivery, revealing the political function of bureaucratic representation (Meier and Nicholson-Crotty, 2006; Riccucci & Meyers, 2004; Julnes & Holzer, 2001). This underscores the argument that politics and administration are inseparable in the public service, as proposed by Wilson (1889/1892), Gulick (1990), and Hicklin and Meier (2008). Nevertheless, the literature has yet to focus on how to establish an effective mechanism to attain diversity, equity, and inclusion (DEI) in the public service, leaving it unclear whether bureaucratic representation can be a co-product of politics and administration. Existing research on representative bureaucracy primarily addresses how public bureaucracy can represent the citizens it serves (for passive representation, see e.g., Kingsley, 1944; Meier, 1993; Meier & Nigro, 1976; Mosher, 1968; for active representation, see e.g., Andrews et al., 2014; Meier & Bohte, 2001; Sowa & Selden, 2003; and for symbolic representation, see e.g., Nicholson-Crotty et al. 2016; Riccucci et al., 2014; Theobald & Haider-Markel, 2009). However, there is limited knowledge regarding how public organizations create a representative and diversified public workforce. This is partly due to the fact that public

employees are typically hired and compensated through standardized merit-based civil service systems, resulting in bureaucratic representation of socially underrepresented groups being subject to standardized public personnel management as an apolitical procedure (Hays & Kearney, 1990; Shafritz et al, 2016; Mosher, 1982; Ingraham, 1995; Moynihan, 2004; Moynihan & Ingraham, 2010; Skowronek et al., 2021).

However, human resource management in the public sector, although procedurally value-neutral, is subject to the influence of politically elected leaders of the executive branch, a common phenomenon in democratic countries. Various studies (Hollibaugh et al., 2014; Lewis & Waterman, 2013; Ouyang et al., 2017; Dahlström & Niklasson, 2013; Ennsner-Jedenastik, 2016; Veit & Scholz, 2016) indicate that the demographic composition of the public workforce and the remuneration of public workers based on merit-based evaluation can be politicized by executive leaders. This politicization can result from the executive leaders' different attitudes towards underrepresented social groups in public service delivery, influenced by their partisanship-based ideological differences (e.g., Cadigan & Janeba, 2002; Thomsen, 2014). Governments led by political executives from different parties may exhibit substantive differences in the recruitment and treatment of public workers from socially underrepresented groups, which can ideologically shape the status of bureaucratic representation.

In the U.S., governors attain their positions through gubernatorial elections and are responsible for overseeing the entire state executive branch. In this role, governors must

balance their ideological leanings with the interests of their constituents. Due to the intersection of politics and administration, governors serve as useful subjects for empirical investigation into the impact of chief executive partisanship on the formation of representative bureaucracy. Institutional factors such as gubernatorial election cycles, the separation of power between state governments and legislatures, and independent legislatures across states provide an opportunity to explore the conditions that facilitate the influence of executive leaders' partisanship on the representativeness of underrepresented social groups in the bureaucracy. Thus, this study seeks to address two central questions: does the partisanship of executive leaders affect bureaucratic representation? Can the impact of the political executive's partisanship on bureaucratic representation shaped by certain institutional pressures?

Using a regression discontinuity design applied to a compiled dataset on state and local public employment and gubernatorial elections spanning the years 2000 to 2019, this study investigates the influence of executive leaders' partisanship on bureaucratic representation in the context of American states. The empirical results indicate that governor's partisanship, specifically the contrast between liberal Democrats and conservative Republicans, has a significant impact on the bureaucratic representation of certain minority groups based on gender, ethnicity, race, and their intersectionality, as manifested in the new employment and salaries of current employees. Moreover, these effects are compounded by distinct institutional pressures. The implications of these

findings are twofold. First, they contribute to ongoing debates about representative bureaucracy, in which political and institutional factors are key to promoting DEI in the public sector workforce. Second, they highlight the political dimensions of representative bureaucracy, confirming the long-standing idea that politics and administration are intrinsically linked in bureaucratic attempts to achieve DEI in the public sector. Finally, the study specifies the institutional conditions that shape the ideological impacts on representative bureaucracy.

4.3 Executive Leadership as A Source of Politicizing Bureaucratic Representation

Representative bureaucracy theory posits that public bureaucracy can achieve democratic outcomes through responsive policy efforts and administrative actions resulting from demographically diverse public personnel (Kingsley, 1944; Meier, 1993; Meier & Nigro, 1976; Mosher, 1968; Selden, 1997). The existing literature has thoroughly examined how demographically represented public bureaucrats can benefit their citizenry counterparts by specifying three types of bureaucratic representation: passive, active, and symbolic representation, and how the first can be transformed into the other two. Mosher (1968) was the first to distinguish between "passive" and "active representation", with the former referring to the extent to which bureaucrats reflect the demographic origins of the people they serve in terms of race/ethnicity, gender, class, or other identities (Kingsley, 1944; Mosher, 1968). In contrast, active representation refers to bureaucratic outputs in

terms of policy outcomes or administrative practices that are responsive to the represented citizens (Meier & Bohte, 2001).²⁰ Subsequent inquiries proposed the concept of "symbolic representation," which operates cognitively on the side of the represented by reshaping their attitudes and behaviors without actively taking actions from the side of bureaucrats (Theobald & Haider-Markel, 2009). Outcomes of symbolic representation include increased government public legitimacy and civic coproduction (e.g., Nicholson-Crotty et al., 2016; Riccucci et al., 2014). However, these works mostly assume passive representation in public bureaucracy to test the mechanisms that can transform such static descriptive representation of socially disadvantaged groups into policy outcomes that benefit them. Although early studies on passive representation suggest a normative view that descriptive representation is necessary for organizational legitimacy (e.g., Kingsley, 1994; Long, 1952), little is known about how such descriptive representation is established in the public workforce.

The under-exploration of the establishment of bureaucratic representativeness is partially due to the emphasis on street- and middle-level public bureaucrats hired through the standard merit-based civil service system (Lipsky, 1997). Prior research on representative bureaucracy predominantly focused on street-level bureaucracy, primarily due to the commonly assumed and evidenced discretion of frontline bureaucrats in driving

²⁰ The literature has extensively discussed various conditions that facilitate the transformation of passive representation into active representation, such as discretion, identity salience, political power, organizational structure, and nature of the policy area (Andrews, Ashworth, & Meier, 2014; Groeneveld et al., 2015; Keiser et al., 2002; Meier, Pennington, & Eller, 2005; Smith & Monaghan, 2013; Sowa & Selden, 2003).

substantive policy outcomes from bureaucratic representation. Street-level bureaucrats are primarily recruited through the merit-based civil service system and are therefore regarded as neutrally competent in a normative sense. In his seminal work, Kaufman (1956) addressed the fundamental question of who directs administrative agencies by emphasizing the role of neutral competence in preventing bias from representativeness and chief executives. Representativeness denotes that public administrators are either directly elected or subject to legislative control, and the chief executive gains legitimacy and power to direct administrators and public bureaucracy. Neutral competence, as per Friedrich's (1940) classic conceptualization, entails that administrators must be guided by their own internalized professional norms, which partially align with executive leadership to surmount political preferences arising from representativeness or even from allied chief executives.

The benefits of a professional-norm-driven public workforce for public organizational performance are well-documented, and the value-neutral merit-based career civil service system has become a model for public personnel management. Numerous studies have found that an increase in reliance on political appointees at the expense of career civil servants has negative consequences for public service performance, including lowered morale, fragmented implementation, and barriers to recruiting highly qualified professionals. For instance, Suleiman (2003) found that this trend is observed across different national contexts. In the U.S., Gilmour and Lewis (2006) analyzed federal

programs and found that those managed by career civil servants outperformed those run by political appointees. Scholars have widely recognized that the civil service reformers and other political progressives of public personnel management in the U.S. played a crucial role in transitioning from political patronage to merit-based systems, which emphasized efficiency by defining personnel management as a neutral administrative function (Hecl, 1977; Mosher, 1982; Fischer, 1945; Sayre, 1948; Hays & Kearney, 1990; Shafritz et al, 1992).

However, proponents of neutral competence in the civil service system cannot assert that regular government employment is entirely apolitical. In democratic regimes such as the U.S. and Western European countries, the elected leaders of the state's executive branch and their appointees may politicize the normatively neutral public employment system, thereby actively influencing the demographic composition of public bureaucracies. The merit-based personnel system can be directly altered by administrative reforms initiated by top political executives, aimed at exerting greater control over bureaucracy or empowering certain political actors (usually the reformers themselves) (Hays & Sowa, 2006; Kellough & Nigro, 2010). Other proposals may seek to increase "managerial flexibility" and bureaucratic responsiveness to democratic institutions through increased appointment power (See, e.g., Salkin, 2002; Kennedy, 2014; Kellough, Nigro & Brewer, 2010). Top executives may also use executive mandates to eliminate barriers in merit systems and invest considerable energy to do so to leave their mark and be re-elected

(Seifter, 2017; Kellough & Nigro, 2010; Kellough, Nigro & Brewer, 2010). Therefore, public personnel management can be politicized by these executives, leading to changes in the merit-based employment system based on their preferences.

The ability to exert greater control over public bureaucracies allows top political executives to shape public agency employment in a manner that aligns with their interests. According to the theory of bureau-shaping, bureaucrats' ability to influence their working style affects their support for administrative reforms, as they prefer a policy advisory role that is closely aligned with core political decision makers (Dunleavy, 1991/2014). Empirical evidence supports this, with top bureaucrats playing an increasingly active role in policymaking in both presidential and parliamentary systems (Hollibaugh et al., 2014; Lewis, 2008; Lewis & Waterman, 2013; Ouyang et al., 2017; Dahlström & Niklasson, 2013; Derlien, 2003; Enns-Jedenastik, 2016; Veit & Scholz, 2016). However, this increased involvement does not necessarily imply neutral policymaking, given the trend of executive branch politicization observed in various countries (Kavanagh & Rich, 2018; Veit et al., 2017). In countries such as the U.S., the U.K., Germany, and Switzerland, political influence on the (de)selection of top officials has shifted the delicate balance between bureaucratic professional independence and responsiveness towards the latter (Aucoin, 2012; Dahlström et al., 2011; Peters & Pierre, 2004). Furthermore, it is frequently observed that the decision-making of top agency bureaucrats, including employment and operations, signals the preferences of the top political executives who appointed them (Derlien, 1996;

Hustedt & Salomonsen, 2014).

Thus, executive leaders' preference on DEI in public agencies can eventually determine the employment status of people from the socially underrepresented groups in public agencies, which is fundamental to bureaucratic representation. First, it may affect the public organizational attractiveness to the prospective job applicants from the socially underrepresented groups. Theory of procedural justice highlights that people value being treated respectfully by authority figures, particularly members of historically disadvantaged groups (Tyler, 1990; Tyler et al., 1996). Hence, executive leaders' efforts to enhance DEI in public services may alter the government's public image and attract job seekers from socially underrepresented groups. While research on the topic remains limited in the public sector, the generic management literature posits that organizational image is linked to individual differences, including race, age, and gender, as well as occupational differences (e.g., Jurgenson, 1978; Rynes et al., 1983). Public personnel systems were historically designed to promote appropriate behavior in a relatively homogeneous workforce, primarily composed of White men in the U.S. context. However, diversity-oriented policies may develop a work environment that is more receptive to the standards and practices embraced by minority cultures, which is appealing to people from socially underrepresented groups (Kossek & Zonia, 1992). Consequently, executive leaders who prioritize DEI in public agencies can increase the proportion of newly hired minority public workers, contributing to the bureaucratic representativeness of their citizen counterparts.

Such positive symbolic effects of bureaucratic representation include citizen trust, government legitimacy, and civic willingness to co-produce public services.

Similarly, the DEI preference of top political executives could impact the treatment of employees belonging to socially underrepresented groups in public agencies. Notwithstanding sector-specific factors such as public service motivation, it has been discovered that the appealing wages and benefits, including prestige, flexibility, and security, act as drivers for individuals to pursue and maintain positions in government agencies (Bolton et al., 2021; Lee & Whitford, 2008; Lewis & Frank, 2002). The treatment of bureaucrats within their department can significantly impact their organizational commitments. Empirical evidence has confirmed a strong association between turnover among public employees and pecuniary rewards such as wages and benefits, in addition to their personal preferences and values (Bolton et al., 2021). Furthermore, research has revealed that leadership styles which embrace diversity, such as transformative and inclusive leadership, play a positive moderating role in the relationship between workforce diversity and public organizational performance (Anonymous). In this way, the preferences of executive leaders regarding DEI can influence the decisions made by public agency heads regarding the treatment of employees from socially underrepresented groups. These decisions can subsequently impact the willingness and ability of these employees to effectively serve their social counterparts by generating meaningful policy outcomes (e.g., Andrews et al., 2014; Sowa & Selden, 2003; Groeneveld et al., 2015; Keiser et al., 2002).

Thus, the level of bureaucratic representativeness may not be as irrelevant to the merit-based civil service system as assumed by the advocates of neutral competence.. The politicization of bureaucratic representation, based on the political affiliations of top political executives, is a plausible outcome due to their accountability to the democratic institutions that grant them power.

4.4 Impacts of Executive Leader's Partisanship on Bureaucratic Representation: Governors in the U.S.

The potential variation in bureaucratic representativeness among socially underrepresented groups may be ascribed to the preferences of top political executives regarding the composition of the public workforce. The political ideologies of these executives, which are shaped by inter-party struggles for executive leadership, can significantly impact their approaches to the construction of the public workforce (Kellough et al., 2010; Moe, 1982). Given that liberal and conservative political parties may hold contrasting views on how socially disadvantaged groups ought to be treated, the partisanship of executive leaders can influence their endeavors to reshape the public workforce, subsequently affecting the level of bureaucratic representativeness in public organizations.

The U.S. political context has frequently acknowledged the ideological differences in policy proposals between competing political parties in the executive branch. Since the

1970s, an increasingly polarized ideological divide has been observed between Democratic and Republican officials at the national level (McCarty et al., 2006; Carmines & Stimson, 1989). This polarization trend has been driven by either true polarization or party sorting, leading to increased ideological divergence between the major parties' primary electorates (Abramowitz, 2010; Fiorina & Abrams, 2008; Adams & Merrill, 2008). Subsequently, party nominees have been incentivized to diverge from the median voter, resulting in increasingly extreme policy views (Bafumi & Herron, 2010; Gilens et al., 2011; Poole & Rosenthal, 1984). Consequently, the ideological conflict in policy proposals between the two national parties has become more aligned with the dichotomy of "liberalism" and "conservatism," eventually leading to a greater impact of government partisan composition on policymaking (Noel, 2014; McCarty et al., 2006; Winters, 1976). At both federal and state levels, Democratic governments have been found to be more liberal than their Republican counterparts. This has been evidenced by increased budgets for all categories of public service, higher rates of real personal income growth, more comprehensive healthcare coverage, more equitable income redistribution, and less restrictive implementation of abortion and death penalty legislation since the 1990s when political polarization began to increase (Alm & Rogers, 2011; Cahan & Potrafke, 2017; Gu et al., 2017; Chang et al., 2009; Gray et al., 2010; Grogan, 1994).²¹

²¹ It has been frequently argued in political science literature that the national parties' ideological dyads are now permeating at local levels, which can be empirically supported by the findings that public political opinion is better predicted by the party identification of the respondents than by the particulars of the respondents' local context, and that elections of cities and counties have been increasingly shaped by the national parties' networks (Hertel-Fernandez, 2019; Hopkins, 2018; Reckhow et al., 2017). And it is found that there has been more room for the ideological struggles between national parties in city and county

The polarization of the two major political parties in the U.S. has resulted in a stark ideological divide on DEI issues, with significant implications for policymaking. This divide emerged as early as the 1960s and 1970s, with Democrats holding more liberal attitudes on issues related to race, ethnicity, gender, and age compared to their Republican counterparts (e.g., Cadigan & Janeba, 2002; Thomsen, 2014). The link between mass public attitudes, party attachments, and policymaking has resulted in further polarization in DEI policy proposals between the competing parties for executive leadership (Carmines & Stimson, 1989; Schickler, 2016; Tesler, 2016; Valentino & Sears, 2005). This polarization has been reflected in the support for the Democratic Party by most ethnic and racial minority groups, while the Republican Party has garnered support primarily from conservative white voters (Abrajano & Hajnal, 2015; Alvarez & García Bedolla, 2003). Democratic governments have been more supportive of minority groups in policy areas such as immigration and employment, in contrast to their Republican counterparts. The influence of party ideology on DEI policy attitudes and their implications for policymaking has been well-documented (Engelhardt forthcoming; Haney López, 2014; King & Smith, 2014; Barreto & Segura, 2014; Kinder & Winter, 2001; Tesler, 2016).

As previously suggested, the politically elected top executives are at the

governments, as indicated by Tausanovitch & Warshaw's (2014) illustration that "'Liberal' cities seem to get 'liberal' policies and 'conservative' cities seem to get 'conservative' policies...This suggests that not only is city government political, but that it may have more in common with state and national politics than previous scholars have recognized." (p. 621) Studies on local government in the U.S. have found that greater Democratic vote share is associated with higher local government expenditures and greater expenditures on certain functions like public safety, parks and recreation, and infrastructure (Choi et al., 2010; Einstein & Kogan 2016, Sances, 2019).

intersection between politics and administration, and this can lead to politicizing public personnel management. In the U.S., governors are elected to head state executive branches, making them prime candidates for analyzing the impact of executive leaders' partisanship on bureaucratic representation. In addition to limiting the legislative branch's influence on controlling the state bureaucracy, governors may exert their own influence on the personnel of executive agencies under their direction (Kaufman, 1956). State administrators often report that governors are the most influential actors in changing state personnel policies, and their role is consistent across different functional areas (e.g., Grady & Hunt, 1993).²²

The impact of governors' party affiliations on bureaucratic representation is significant, as they have the power to shape public bureaucracies within states through gubernatorial appointment and executive power. Governors can reshape the state and local personnel system by increasing political appointments for agency heads and other gubernatorial staff. Personnel system reforms and resulting executive branch reconstruction have granted governors with more authority to appoint agency leadership, which strengthens their reorganization authority and allows them to bypass legislative barriers (see, e.g., Governor McAuliff, 2016; Douban, 2016). This increased appointment power enables governors to increase their control over administrative departments and

²² Despite the lack of focus, even at local level, government employment in a significant number of large cities were found to be fluctuated under the gubernatorial influence (e.g., Levitt, 1997). Thus, given the increasingly polarized ideological beliefs between the major parties competing for the gubernatorial seats including the ideological conflicts on the DEI issues, governors' partisanship may shape their influence on the government personnel within the states. Such ideological impact on the demographic compositions of public personnel will eventually decide the extent to which the socially underrepresented groups can be represented in the public bureaucracy.

bureaucratic responsiveness to gubernatorially prioritized policy affairs (Levinson, 2016; Hoang & Goodman, 2018; Hays & Kearney, 2001; Bowman & Kearney, 2016; Grady & Hunt, 1993).²³ Due to the polarized ideological beliefs in their partisanships, the political appointments of governors from different parties may result in significant divergence in their policy priorities to address DEI issues in the public workforce.

Moreover, the exercise of executive power by governors to allocate agency resources can directly impact the composition of public personnel. Studies have revealed that governors with greater formal powers tend to exert more influence on bureaucratic agencies within their states (Asimow & Levin, 2014; Watts, 2012; Bonfield, 1982). The primary means by which governors exercise their formal power to restructure executive agencies is through budget administration. Governors can employ a range of tools to shape the state budget process, including direct proposals, review from gubernatorially established budget offices, and line-item vetoes, which can be used as bargaining tools to advance policy priorities (e.g., Kousser & Phillips, 2012; Abney & Lauth, 1989; Alm & Evers, 1991; Lauth & Reese, 2006). Notably, with the increasing polarization of political parties, studies have shown that Republican governors have a greater tendency to reduce spending than Democratic governors (Smith & Hou, 2013). This partisan difference,

²³ Compare, e.g., Matt Pearce, Kansas Governor Removes Protections for LGBT Employees, L.A. TIMES (Feb. 10, 2015, 5:28 PM), <http://www.latimes.com/nation/la-na-kansas-governor-gay-protection-20150210-story.html> [<https://perma.cc/R84Q-DEAN>], with Karen Langley, Wolf's Executive Orders Expand Protections Against Discrimination for State Workers, Contract Employees, PITTSBURGH POST-GAZETTE (Apr. 8, 2016, 12:00 AM), <http://www.post-gazette.com/news/state/2016/04/08/Wolf-s-executive-orders-expand-protections-against-discrimination-for-state-workers-contract-employees/stories/201604080056> [<https://perma.cc/5KR4-EE4X>].

coupled with divergent attitudes toward DEI issues, can have significant implications for the allocation of resources to public agency personnel, potentially impacting the recruitment and compensation of underrepresented minority workers.²⁴

The two dimensions of gubernatorial power allow governors to shape the state and local public personnel from two perspectives as previously discussed: the recruitment of new employees from socially underrepresented groups and their compensation within public agencies. Firstly, governors can utilize their direct executive power or policies from political appointees to influence the workplace environment of public agencies, which can impact the organizational attractiveness to prospective job applicants. Historically, Democratic legislators and governments have been more attentive to the wellbeing of socially disadvantaged groups than their Republican counterparts, as evidenced by their support for more liberal immigration policies, greater education expenditures for minority students, considerate public health packages, and job training programs for minorities (De Benedictis-Kessner & Warshaw, 2016, 2020; Hill & Jones, 2017; Guul, 2018; Fernandez

²⁴ Even at the local level, governors can also shape public sector employment to a certain extent. It seems that governors may stamp out local control because they tend to have higher priorities at state level, including their substantive policy agendas, the principles and success of their political parties, which determine their political futures as the states' executive leadership (Levinson, 2005). However, for the same political reasons, they may reverse themselves to enhance local power as a means of advancing a substantive policy agenda especially when political context changes. For one thing, the constitutional inferiority of localities enables governors to exert considerable influence over local politics and policy (Burns and Gamm 1997). Moreover, the visibility and importance of addressing issues in specific localities might motivate governors to reshape local regimes to show the local voters they are performing their duties (Dye 2000; Turner, 1990). In this way, governors and their party allies may have the ability to affect local government employment through reallocation of public funds in the state budget, the spread of generic employment policies to local levels, large projects and procurement contracts, and prioritizing employment friendly policies such as adjusting business taxes (Garmann, 2017; Foremny and Riedel, 2014; Mechtel and Potrafke, 2013; Akhmedov and Zhuravskaya, 2004; Blais and Nadeau, 1992). This may reshape the demographic composition of local public workforce.

et al., 2006). Consequently, partisan-driven differences in governors' policy preferences on DEI issues may generate divergent public images among socially underrepresented groups, ultimately impacting their choices of working in the public sector. Despite the standard merit-based employment of civil service, this can lead to changes in the proportions of newly hired public employees from minority groups in the overall population.

H1: the proportion of newly hired minority employees is higher in the executive branch under liberal executive leaders than conservative ones

In addition, the governor's personnel power can directly impact the treatment of current minority public workers, with remuneration being an essential indicator. As previously discussed, the governor's desire to enhance bureaucratic responsiveness to gubernatorial priorities can lead to the replacement of traditional employee protection and rigid classification and pay systems with more flexible compensation and benefit policies. In other words, governors have increased power in determining how public employees are treated in their agencies (Gray & Hunt, 1993). Since government budget and employment policies differ ideologically between the two major political parties, public employees within states may experience different remuneration statuses under the leadership of governors from different parties (Smith & Hou, 2013; Chang et al., 2009; Alm & Rogers, 2011; Cahan & Potrafke, 2017). Given that governors from different parties may hold different views on how to treat minority groups, the salaries of employees from socially underrepresented groups can differ under governments led by governors of varying

partisanship.

H2: the compensation status is better in the executive branch under liberal executive leaders than the conservative ones

4.5 Institutional Pressures of Political Impacts on Bureaucratic Representation

The influence of executive leaders' partisanship on bureaucratic representation may be exacerbated under varying institutional isomorphic pressures. The neo-institutionalist framework of institutional isomorphism, introduced by DiMaggio and Powell (1983), characterizes the process through which organizations conform to other entities within the same field. The theory contends that the standardization of organizational structure and processes is a response to external institutional pressures and identifies three types of such pressures. Coercive pressures emerge from rules and regulations that require organizations to adhere to certain rule-based practices, whereas normative pressures arise from shared values and norms that encourage organizations to adopt practices deemed "appropriate". Mimetic pressures stem from benchmarking competition, which motivates organizations to emulate practices perceived to be successful (DiMaggio & Powell, 1983). As previously noted, the effect of top political executives on bureaucratic representation tends to be highly ideological and contingent on the political institutional environment. In the context of American states, the institutional pressures that moderate the impact of governors' partisanship on bureaucratic representation may arise from political parties' competition

for control of legislative and executive branches.

Drawing on the concept of coercive isomorphism, political executives affiliated with more liberal parties may be more inclined to increase bureaucratic representation, particularly if legislative frameworks promoting DEI in employment exist. Partisanship is a strong predictor of legislative support for minority interests, with Democrats exhibiting greater support than Republicans (Canon, 1999; Griffin & Newman, 2008; Lublin, 1997; Swain, 1993; Whitby, 1997). Democrats tend to prioritize DEI issues in their policy proposals more than their Republican counterparts, thus a statutory framework for anti-discrimination employment in the state legislature can motivate a policy response from Democratic executive leaders to enhance their government's legitimacy (Caughey et al., 2017; McCarty et al., 2006; Schickler, 2016; O'Brian, 2019). Therefore, Democratic governors may be more proactive in reducing structural inequity in public agency employment within their states in response to established legislation against discrimination in the broader labor market. In contrast, Republican governors may be less likely to implement affirmative action policies and employ diversity officers to create a more DEI-friendly government workplace environment, resulting in a less pronounced impact of governor's partisanship on bureaucratic representation (Leslie, 2019; Walker et al., 2007; Williams & Bauer, 1994; Kossek & Zonia, 1992). Such efforts can enlarge the impacts of governor's partisanship on bureaucratic representation.

H3: there is a larger gap in the resulted levels of bureaucratic representativeness between

liberal and conservative executive leaders with the existence of anti-discrimination employment legislations

The impact of the governor's partisanship on bureaucratic representation in the public sector may be influenced by normative isomorphic pressures. Specifically, if the governor and legislative branch belong to the same political party, there may be a heightened expectation and normative pressure for the governor to prioritize diversity and inclusion policies. This could be due to the party's commitment to such issues or societal expectations. Conversely, if the governor and legislative branch are from different parties, there may be less normative pressure to focus on diversity and inclusion policies, as the legislative branch may not prioritize such issues. This may result in stronger resistance to diversity initiatives or less emphasis on them (Arapis & Bowling, 2020; Clarke, 1998; Bernick & Wiggins, 1981; Morehouse, 1998). Therefore, when the executive and legislative branches are from the same party, the difference in emphasis on diversity issues between Democratic and Republican governors may become more apparent and may impact bureaucratic representativeness. Specifically, governors from the Democratic Party may be more inclined to prioritize diversity initiatives, which may result in increased representation of minority groups in the public sector workforce. Conversely, Republican governors may place less emphasis on diversity initiatives, resulting in a potential decrease in the representation of minority groups. This effect may be observed in both the recruitment and treatment of current minority employees.

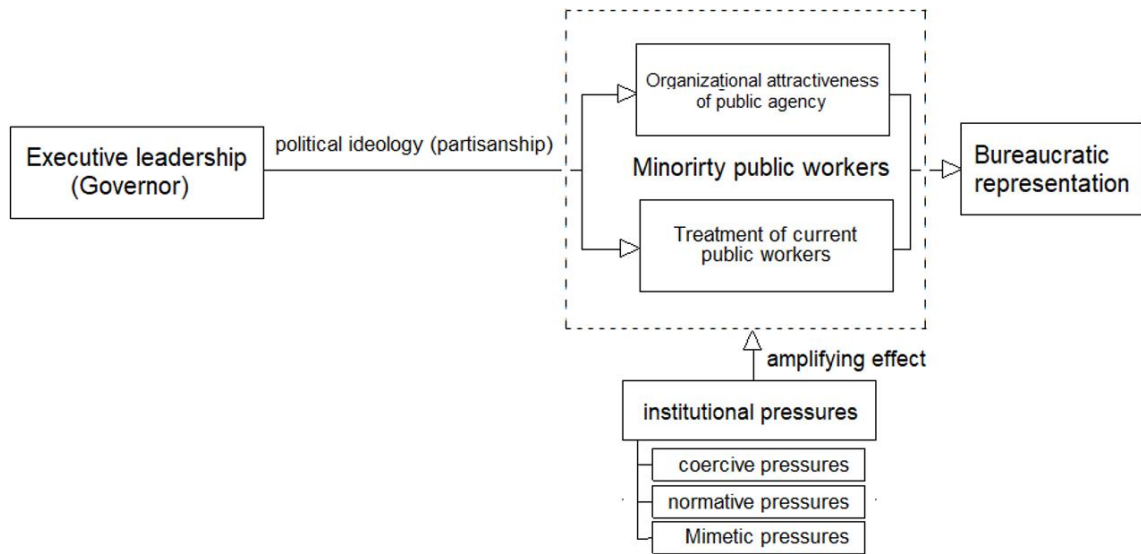
H4: there is a larger gap in the resulted levels of bureaucratic representativeness between liberal and conservative executive leaders when the legislature and executive branch are controlled by the same party

The theory of mimetic isomorphism implies that the gap in bureaucratic representativeness between governments under liberal and conservative executive leadership may be enlarged when a different person comes to power. The current political climate in the U.S. is characterized by increasing polarization, which diminishes the influence of median voters and can pressure governors to adopt more extreme positions to appeal to their party's base and win elections (Abrajano et al., 2005; Boudreau et al., 2015; Tesler, 2016). This dynamic may make it challenging for governors to implement moderate policies that appeal to a broad swath of the electorate. Instead, they may be compelled to take more extreme positions to demonstrate their leadership and gain support within their party. Thus, during party transition, the new governors may lean more to their parties' ideological extremes in order to rapidly gain legitimacy of their governments among the public/voters (e.g., Stonecash et al., 2003; Barreto & Segura, 2014). Even if it is the new governors from the same party, they will also lean their policy preference toward a radical political view of their parties rather than the moderate policy positions (Sances, 2018; Kinder & Winter, 2001). This trend may also affect personnel decisions and lead to a widening gap between Democratic and Republican first-time-elected governors on issues related to DEI in public employment. Figure 4.1 graphically describe the theoretical

framework.

H5: there is a larger gap in the resulted levels of bureaucratic representativeness between liberal and conservative executive leaderships when an executive leader is elected for the first time.

Figure 4.1 Theoretical Framework



4.6 Methodology

4.6.1 Variables and Data

In order to empirically test the impact of executive leader's partisanship on bureaucratic representation in the context of American states, this study compiles data from multiple sources, with the complete dataset covering 50 states from 2005 to 2021, with the unit of analysis being individual states in the U.S. The primary outcome variables of interest are the proportion of newly hired public employees from minority groups and the

compensation of current minority public workers, which serve as indicators of bureaucratic representation. In addition to women, this study examines minority groups that are defined by the U.S. government as *Black*, *Hispanic*, *Asian*, or *Native American*.²⁵ However, given the multifaceted and dynamic nature of social identities, intersectionality theory suggests that groups with multiple minority identities face unique societal challenges (Browne & Misra, 2003; Best et al. 2011; Parker & Hefner, 2015; Crenshaw, 1989). Scholars have increasingly advocated for representative bureaucracy as a means to benefit both underrepresented social groups from a single identity dimension and their intersections. (Bearfield, 2009; Riccucci, 2009; Fay et al., 2020). Therefore, this study also considers minority groups that represent intersections of gender and racial or ethnic minorities, such as *Black females*, *Hispanic females*, *Asian females*, and *Native American females*. To collect the necessary data, this study utilizes the Office of Personnel Management's EEO-4 datasets, which are biennial reports on state and local government employees collected by the Equal Employment Opportunity Commission (EEOC). The datasets provide information on the proportion of individual minority groups in newly hired public employees and the median wage of current minority workers, which have been adjusted to the monetary values of 2021 using inflation rates provided by the Bureau of Economic Analysis (BEA).

Data on gubernatorial elections were collected from Amlani and Algara's (2021)

²⁵ Even though they may be contested terms, it seems the least confusing to use them “as is” rather than reinvent them or alter them to superimpose potentially different definitions of identity on the original data.

research, which includes information on the winning candidate's vote shares, runners-up, and whether the election is for an incumbent or an open seat. Gubernatorial terms typically last four years, with the exception of New Hampshire and Vermont, where terms are two years. Elections are held in November, and every year, a subset of states holds gubernatorial elections. Thirty-six states hold their gubernatorial elections during presidential midterm years, nine during presidential election years, and five in odd-numbered years. Incumbents have no control over election timing, as historical election schedules have remained largely unchanged over the past 50 years (Cahan, 2018). Consequently, this study's merged dataset contains more than 200 observations from 2005 to 2021, allowing for an examination of the differences in bureaucratic representation resulting from executive leaders' various partisan affiliations.

This study also examines the moderating effects from different institutional pressures on the relationship between executive leaders' partisanship and bureaucratic representation. To this end, the research collected data on state antidiscrimination laws and legislations from McQueen's (2021) and Soren et al.'s (2008) datasets to measure coercive isomorphic pressures. The party affiliations of state legislatures and governors were obtained from the National Conference of State Legislature (NCSL) and used to gauge the normative isomorphic pressure resulting from the match in partisanship between state legislative and executive branches. Additionally, the study operationalized the mimetic isomorphic pressure by identifying party transitions and open seat elections through data

from Amlani and Algara (2021).

In addition, this study incorporates a set of predetermined covariates that complement the empirical analyses. Firstly, the employment of the public sector may be influenced by the state's general labor market, which is primarily shaped by its population and economic status (e.g., Treisman, 2007). Thus, state demographics, including the total population and the population of individual minority groups, were obtained from the American Community Survey (ACS), while the real Gross Domestic Product (GDP) value of each state was sourced from BEA. Gubernatorial actions may also be affected by their own identities and their relationship with the state legislature, prompting the inclusion of governor gender and party control of the state legislature, as reported by the National Conference of State Legislatures (NCSL) (e.g., Caughey et al., 2017; Besley & Case, 2003; Chen, 2007; Reed, 2006). Furthermore, the level of unionization in public agencies within the state may also impact the gubernatorial power to reshape public personnel within the state (Bolton, 2021). As a result, this study incorporates data on union density estimates by state, including both state union membership and coverage density, extracted from the database developed by Hirsch, Macpherson, and Vroman (2001). The descriptive statistics with data sources are presented in Table 4.1.

Table 4.1 Descriptive Statistics and Data Sources

Variable	Obs	Mean	Std. Dev.	Min	Max	Data source
Newly hired Female %	394	49.82	5.17	29.84	66.48	EEO-4

Newly hired White %	394	72.627	17.189	19.3	97.45	EEO-4
Newly hired Black %	394	16.176	14.387	.16	69.74	EEO-4
Newly hired Hispanic %	394	7.212	9.369	.22	54.73	EEO-4
Newly hired Asian %	394	2.381	2.649	0	15.96	EEO-4
Newly hired Native %	394	1.126	1.934	0	12.77	EEO-4
Newly hired White Female %	394	34.925	10.155	4.98	62.1	EEO-4
Newly hired Black Female %	394	9.21	8.553	0	37.59	EEO-4
Newly hired Asian Female %	394	1.271	1.405	0	8.38	EEO-4
Newly hired Hispanic Female %	394	3.614	4.461	0	25.11	EEO-4
Newly hired Native Female %	394	.573	1.052	0	6.73	EEO-4
Median Salary Female	245	47509.027	8690.633	32208.35	72745.164	EEO-4
Median Salary White	345	53782.59	10257.647	35283.258	79076.578	EEO-4
Median Salary Black	345	47458.148	9669.603	29432.039	71364.094	EEO-4
Median Salary Hispanic	345	48046.65	9538.842	29704.303	74038.266	EEO-4
Median Salary Asian	345	56644.247	9626.314	36373.473	83619.477	EEO-4
Median Salary Native	344	50435.654	10063.578	32887.703	83925.711	EEO-4
Median Salary White Female	345	49462.132	9096.047	33177.953	78586.391	EEO-4
Median Salary Black Female	345	45420.469	9157.967	28831.225	71292	EEO-4
Median Salary Asian Female	345	53453.248	10131.293	34729.105	82002.523	EEO-4
Median Salary Hispanic Female	345	44525.614	8851.567	27369.113	74200.914	EEO-4
Median Salary Native Female	344	46894.014	9833.246	5679.013	76398.938	EEO-4
Voteshare Dem %	256	45.82	10.755	17.45	74.01	Amlani & Algara (2021)
Voteshare Rep %	267	49.652	10.224	11.14	77.63	Amlani & Algara (2021)
State Female pop	765	3063522.1	3452094.3	11794	19867369	ACS
State White pop	1020	4699618.7	5158126.9	188928	28518935	ACS
State Black pop	1020	779636.36	940011.54	2797	3739221	ACS
State Hispanic pop	969	950500.4	2309007.6	4945	15574880	ACS
State Asian pop	1020	294418.29	730871.14	2931	6110945	ACS
State Native pop	1020	74228.296	139089.59	1974	2435330	ACS
State White Female pop	1020	2385410.9	2596342	97900	14214008	ACS
State Black Female pop	1020	415695.28	517184.56	1054	5027785	ACS
State Asian Female pop	1020	147523.23	376663.39	.079	3208061	ACS
State Hispanic Female pop	1020	472852.76	1154898.2	2784	7742345	ACS
State Native Female pop	1020	39150.965	99110.52	.204	2409485	ACS
GDP	1020	297709.18	379383.32	17152.5	3052645.2	BEA
Governor gender	1020	.871	.336	0	1	NCSL
Dem legislation	1078	.374	.484	0	1	NCSL
State avg. salary	245	51667.133	9989.527	33807.902	73908.617	ACS
Unionization Density	1071	12.241	5.402	2.1	27.9	Hirsch et al. (2001)
Antidiscrimination constitution	1000	.394	.489	0	1	McQueen (2021)
Antidiscrimination Legislation	979	.225	.418	0	1	McQueen (2021)
Affirmative action ban	1000	.113	.317	0	1	Soren et al. (2008)

4.6.2 Model Specification: A Regression Discontinuity Design

This study utilized a regression discontinuity design (RDD) to estimate the causal effect of executive leaders' partisanship on bureaucratic representation, taking advantage of the naturally-occurring, as-if random assignment of governor's partisanship. While conventional ordinary least squares specification can quantify the general association between governor's partisanship and bureaucratic representation of socially underrepresented groups, it cannot provide an estimate of the causal effect. In contrast, RDD enables this study to identify the causal relationship between governor's partisanship and bureaucratic representation, measured by both the demographic composition of newly hired employees and the salaries of current public workers. Under RDD, observations sufficiently close to an arbitrary discontinuity are separated primarily by exogenous shocks, which refer to gubernatorial elections in this study (Butler & Butler, 2006; Imbens & Lemieux, 2008; Lee, 2008; Lemieux & Milligan, 2008). RDD benefits from discontinuity in potential outcomes around the cutoff. Given modest assumptions, RDD models produce unbiased local average treatment effects that benchmark well with causal estimates from randomized control trials (Buddelmeyer & Skoufias, 2004; Green et al., 2009; Lee & Lemieux, 2010).

The basic idea behind RDD specifications in this study is that the treatment status—governor's partisanship—can only be determined by the difference in vote share between the leading party and the runner-up in the gubernatorial election of a given state. For

instance, Democrats win the gubernatorial elections only if the Democratic candidates' vote share is greater than their runners-up and lose the elections otherwise. The present study considers each gubernatorial election result in the 50 American states during the study period with available data and calculates the running variable as the Democratic candidate's vote share margin of victory with the cutoff point at zero. This approach allows for the implementation of a sharp RDD that isolates as-good-as-random variation in party control of governorship. However, to avoid any possible manipulation of the scores on the running variable due to a lack of electoral competitiveness in safe states, states without party transitions in their gubernatorial elections during years with available data of newly hired public employees and median salary of current public workers were excluded from the final sample (e.g., Kriner & Reeves, 2015; Banzhaff 1968; Bartels 1985; Brams and Davis 1974; Nagler and Leighley 1992; Shaw 2008). The current study aims to evaluate the effects of governor's partisanship by comparing governorships marginally controlled by Democrats to those marginally controlled by Republicans, and thus assesses the main hypotheses. Then, the general specification of the sharp RD model can be:

$$Representation_i^{t'} = \alpha + \beta DemocratGov_i^t + g(Margin_i^t) + \delta(Covariates_i^t) + \varepsilon_i \quad (1)$$

where $Representation_i^{t'}$ stands for bureaucratic representation as operationalized into the proportion of minority people in the newly hired public employees and median salary of current minority public workers within the state i . $DemocratGov_i^t$ is a dummy variable indicating whether or not the Democratic candidate in state i won the gubernatorial

election in year t . $Margin_i^t$ is running variable indicating the Democratic vote share margin of victory in the gubernatorial election of state i in year t . This study specifies the running variable with a local triangular kernel-smoothed function $g(\cdot)$ and use the mean-squared-error (MSE)-optimal bandwidth suggested by Calonico et al. (2017). $\delta(Covariates_i^t)$ is the function for a vector of the covariates to consider the possible imbalance resulted from the inclusion of the aforementioned covariates such as state population, GDP, governor gender, party control of state legislature, and the level of unionization. Note that for the time specifier, the year t' is always after t since the newly elected governor takes power after the year when gubernatorial election takes place, which enables the identification of the causal effects of governor's partisanship on bureaucratic representation. Given the fact that EEO-4 data is biennially collected across state and local government, information about minority job patterns is only available in odd years between 2005 and 2021, which allows this study to evaluate the impacts of governor's partisanship on bureaucratic representation in the second and fourth years of a gubernatorial election cycle.²⁶ Thus, based on Equation (1), the specified models used for empirical inquiries can be:

$$RepNewEmp_i^{t+2} = \alpha + \beta DemocratGov_i^t + g(Margin_i^t) + \delta(Covariates_i^t) + \varepsilon_i \quad (2)$$

$$RepNewEmp_i^{t+4} = \alpha + \beta DemocratGov_i^t + g(Margin_i^t) + \delta(Covariates_i^t) + \varepsilon_i \quad (3)$$

$$MinorSalary_i^{t+2} = \alpha + \beta DemocratGov_i^t + g(Margin_i^t) + \delta(Covariates_i^t) + \varepsilon_i \quad (4)$$

²⁶ First- and third-year models cannot be constructed because of the too small sample size; and the records after the fourth years may include the impact of governor's partisanship in the next gubernatorial cycle.

$$MinorSalary_i^{t+4} = \alpha + \beta DemocratGov_i^t + g(Margin_i^t) + \delta(Covariates_i^t) + \varepsilon_i \quad (5)$$

where $RepNewEmp_i^{t+2}$ and $RepNewEmp_i^{t+4}$ are the proportions of people from minority groups—*female, Black, Hispanic, Asian, native American, Black female, Hispanic female, Asian female, and native American female*—in the total population of newly hired fulltime employees in the state and local governments two and four years after the gubernatorial election in year t . Similarly, $MinorSalary_i^{t+2}$ and $MinorSalary_i^{t+4}$ stand for the median salary of minority public workers in the state and local governments two and four years after the gubernatorial election in year t . Following previous work estimating the effect of party control at the state level on politically relevant outcomes (Caughey et al., 2017; Hall et al., 2017), standard errors ε_i are clustered at the state level.

4.7 Validation of Regression Discontinuity Design

4.7.1 Power Analysis and Bandwidth Selection

In this study, a nonparametric function with a data-driven approach is applied to select the optimal bandwidth, specifically the mean-squared-error (MSE)-optimal bandwidth with triangular-kernel smoothing, to minimize the bias from the RDD. This design is based on the principle of local randomization, where the average treatment effect at the cutoff is unbiased if the functional form between the running variable and the response is correctly modeled. However, the limited number of observations around the cutoff may decrease the statistical power of the RD analysis. Therefore, a formal power

analysis is conducted using the RD power analysis suggested by Cattaneo, Titiunik, and Vazquez-Bare (2017), with the same RDD techniques used in Calonico, Cattaneo, and Titiunik (2014). The results demonstrate that the corresponding power levels are all above the common threshold of 0.80, indicating sufficient statistical power. Additionally, a bandwidth choice method is employed to investigate whether the empirical results from the RDD are mechanically determined by the statistical properties of the estimation and inference methods. Local polynomial techniques with three bandwidth choices, the MSE-optimal choice, the coverage-error (CER)-optimal choice h_{cer} , and the MSE-optimal bandwidth selector for the sum of regression estimates, are applied. The estimates from the RDD are consistent across different bandwidth choices, as shown in Table A4.2 in the Appendix B.

4.7.2 Balance Tests for Covariates

The RDD is valid only if the null hypothesis of no treatment effect on the predetermined covariates cannot be rejected. This is because the discontinuity of potential outcome functions is unlikely to hold if covariates known to strongly correlate with the outcome of interest are discontinuous at the cutoff. Therefore, it is necessary to test for covariate balance in the gubernatorial electoral RD design outlined in Equations (1) to (5). This test is important to ensure that relevant actors do not have precise control over gubernatorial election results. To achieve this, the same local polynomial techniques used in model specification are employed in a continuity-based approach to test whether

contextual covariates are continuous at the cutoff. The falsification test is designed to determine if the treatment has an effect on these predetermined covariates. Results from Table A4.4 in the Appendix indicate that none of the 14 variables showed discontinuities at the cutoff for either 2 or 4 years impacts of governor's partisanship at the 95% level of confidence. This suggests balance at the discontinuities used in this study, and the exact discontinuities in the Democratic vote share margin of victory sort individual gubernatorial elections in an as-good-as random manner. This finding indicates the validity of the RDD for making causal inferences. Further details are provided in Table A4.3 in the Appendix.

4.7.3 Precising Sorting Test

In RDD, precise sorting occurs when observations have the ability to manipulate their score on the running variable, leading to a loss of as-good-as random assignment. To avoid this, the gubernatorial elections without party transitions in their gubernatorial elections in years with available data of newly hired public employees and median salary of current public workers were excluded from the final sample. However, to further test the possibility of precise sorting in the sample, it is necessary to look at clusters of observations around the cutoff. This study employs the density test using the *rddensity* command in the *rddensity* package of STATA, as recommended by Cattaneo, Titiunik, and Vazquez-Bare (2017). The graphical evidence in suggested no discontinuities in the density function. Additionally, the so-called “donut RD” check, recommended by Cattaneo, Idrobo and Titiunik (2019), was performed to address any potential for precise sorting. The results, as

shown in Table A4.1, indicate that the conclusion of the analysis remains largely unchanged after excluding different amounts of units near the cutoff. Both the original and new estimated effects are significant at the 10% level, allowing for the specified cutoff of 0 to be used to estimate the causal effect of governor's partisanship on bureaucratic representation. Details can be found in Figure A4.1 and Table A4.4 in the Appendix.

4.7.4 Placebo Cutoff

The identifying assumption of regression discontinuity is that the regression functions for treatment and control units exhibit continuity at the cutoff, in the absence of treatment. However, this assumption cannot be directly tested at the cutoff. To address this limitation, an alternative approach involves investigating whether the regression functions for control and treatment units are continuous at points other than the cutoff, which is referred to as a placebo cutoff. This test involves replacing the true cutoff value with an artificial value where the treatment status does not change, and then estimating and testing the regression functions using this new value. The results of all models with placebo cutoffs indicate no significant effects, which is consistent with the conclusion that, unlike the true cutoff, the outcomes of interest, including newly employed minority public workers and their salaries, do not exhibit discontinuity at the placebo cutoffs. Further details can be found in Table A4.5 of the Appendix.

4.8 Results and Analysis

4.8.1 Impacts in Different Minority Groups

As a graphical illustration of the sharp RDD in this study, Figure 4.2a-4.2d presents data-driven (nonparametric) RD plots of the impacts of governor's partisanship on the proportion of newly hired public employees and median salary of current public workers from the specific minority groups 2 years and 4 years after the gubernatorial elections. An integrated mean squared error (IMSE)-optimal evenly spaced method was used to select the number of bins.²⁷ Table 4.2a, 4.2b, Figure 4.3a and 4.3b supplemented Figure 4.2a-4.2d with nonparametrically estimated point effects of governor's partisanship on bureaucratic representation using MSE-optimal bandwidth, covariates, and second-order polynomial for the specifications of the running variables as recommended (Calonico et al., 2017).²⁸

As showed in Figure 4.2a, 4.2b, 4.3a and Table 4.2a, different minority groups demonstrated different changes in the proportion of newly hired public workers resulted from difference in governor's partisanship, which contextually supported *H1*. Specifically, the proportion of newly hired Asian, Native American, Asian female, and Native female public employees were significantly higher under Democratic governors as compared to their Republican counterparts either 2 or 4 years after gubernatorial elections. Among the minority groups significantly affected by governor's partisanship, the proportion of newly

²⁷ As validation of the RDD, this study also used methods such as the IMSE-optimal quantile-spaced method to select bins; these alternative plots, which produce comparable results, are available in the Appendix B.

²⁸ This study also conducted a power analysis to address whether the insignificant empirical results of a relatively small sample size are due to a lack of statistical power. As showed in the Appendix B, the corresponding power levels of all models are all above the common power threshold of 0.80.

hired Native Americans in the public workforce were 1.15% to 1.70% greater under Democratic governors with no substantive difference in scale between the 2- and 4-year impacts. Similarly, the proportion of newly hired Native American females in the public workforce either 2 or 4 years after the gubernatorial elections were 0.57% to 0.95% greater under Democratic governors, with the 2-year impacts being greater than the 4-year impacts. Furthermore, only the proportion of newly hired Asians in the public workforce 2 years after the gubernatorial elections were 2.77% greater under Democratic governors. Similarly, the proportion of newly hired Asian females in the public workforce 2 years after the gubernatorial elections were 1.77% greater under Democratic governors, but the impacts turned negative by 0.93% over time. It is noteworthy that the impact of governor's partisanship on the proportions of newly hired intersectional groups (i.e., Asian females and Native American females) were smaller compared to their single-dimensioned ethnoracial groups (i.e., Asians and Native Americans). Surprisingly, the proportion of newly hired Blacks and Black females in the public workforce both 2 and 4 years after the gubernatorial elections were 17.57% to 20.45% smaller under Democratic governors, while the proportion of newly hired Black females in the public workforce both 2 and 4 years after the gubernatorial elections were 11.07% to 13.73% smaller under Democratic governors. In contrast, there was no significant difference in the proportion of newly hired Hispanic or Hispanic females in the public workforce either 2 or 4 years after the gubernatorial elections between governments under Democratic and Republican

governorships.

However, Figure 4.2c, 4.2d, 4.3b and Table 4.2b showed that, in contrast to its impact on the proportion of newly hired public employees, governor's partisanship did not significantly affect the median salary of current public workers from specific minority groups after either 2 or 4 years following the gubernatorial elections. Although most point estimates for minority groups such as female, black, black female, and native female were positive, the difference in governor's partisanship did not confirm the effect of gubernatorial partisanship on the numerations of current minority workers, as proposed in *H2*. As presented in Table 4.2a and 4.2b, the RD models with covariates also displayed the varying effects of gubernatorial partisanship on the proportions of newly hired public workers from different minority groups and the absence of effects on the median salary of current minority workers. This indicates the reliability of estimation from the sharp RDD in this study.

Table 4.2a Impacts of Governor’s Partisanship on Proportions of Newly Hired Minority Public Employee

Models	DV: Proportion of Newly Hired Employees							
	2 year		4 year		2 year		4 year	
	no covs	covs	no covs	covs	no covs	covs	no covs	covs
minority group	Black				Black Female			
RD Estimate	-18.51**	-20.447**	-7.452	-9.0965	-11.067*	-13.726**	-3.2489	-3.3606
SE	9.0586	8.3462	6.5235	7.8779	6.0512	5.688	3.7745	3.5156
N left	69	43	66	32	69	43	66	32
N right	62	48	65	40	62	48	65	40
minority group	Hispanic				Hispanic Female			
RD Estimate	5.265	1.875	5.9852	5.4199	2.7086	0.75512	2.5844	2.1722
SE	3.5476	3.1242	3.7509	5.3515	1.7122	1.3119	1.8026	2.1573
N left	69	43	66	32	69	43	66	32
N right	62	48	65	40	62	48	65	40
minority group	Asian				Asian Female			
RD Estimate	0.64108	2.7476***	-0.76054	-0.81346	0.26425	1.7662***	-0.60124	-0.92904*
SE	0.64706	0.72139	0.97942	0.81263	0.41357	0.36018	0.54993	0.55679
N left	69	43	66	32	69	43	66	32
N right	62	48	65	40	62	48	65	40
minority group	Native				Native Female			
RD Estimate	1.6406*	1.2312	1.1463*	1.1937***	0.94705*	-0.16417	0.57289*	0.41899
SE	0.98444	1.0579	0.62528	0.45175	0.53636	0.29758	0.29768	0.27851
N left	69	43	66	32	69	43	66	32
N right	62	48	65	40	62	48	65	40
minority group	Female							
RD Estimate	0.33779	0.39317	1.0897	3.0688				
SE	4.0038	5.5482	3.926	6.6523				
N left	69	30	66	31				
N right	62	35	65	34				

Note: All models use local polynomial (nonparametric) functions with triangular kernel and the MSE-optimal bandwidth for the running variable as recommended by Cattaneo et al. (2019) and Calonico et al. (2014). Robust standard errors clustered at state level in parentheses. For levels of significance, *significant at .1, **significant at .05, ***significant at .01.

Figure 4.2a Plotted Impacts of Governor’s Partisanship on Proportions of Newly Hired Minority Public Employees (2-year effects)

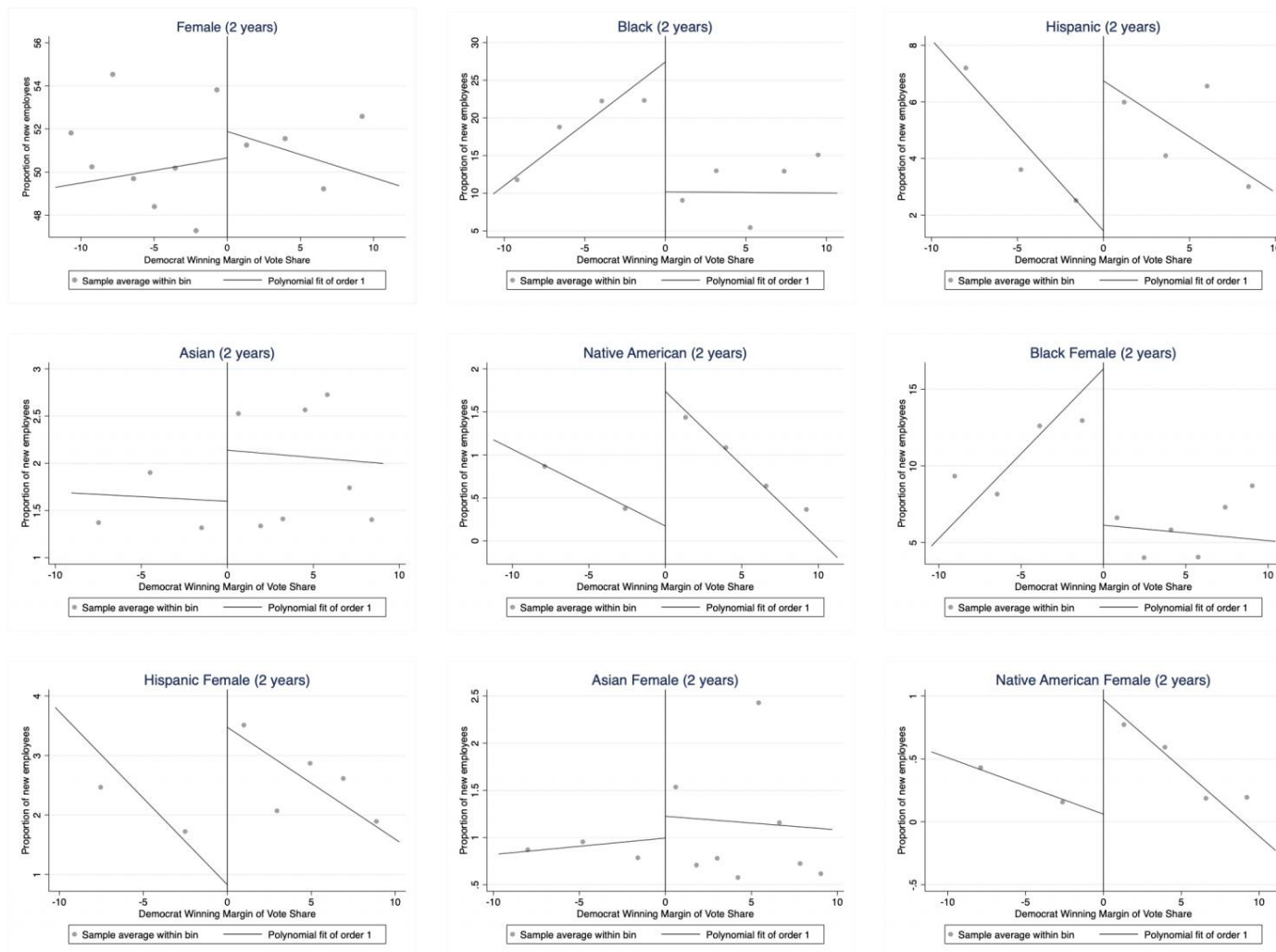


Figure 4.2b Plotted Impacts of Governor’s Partisanship on Proportions of Newly hired Minority Public Employees (4-year effects)

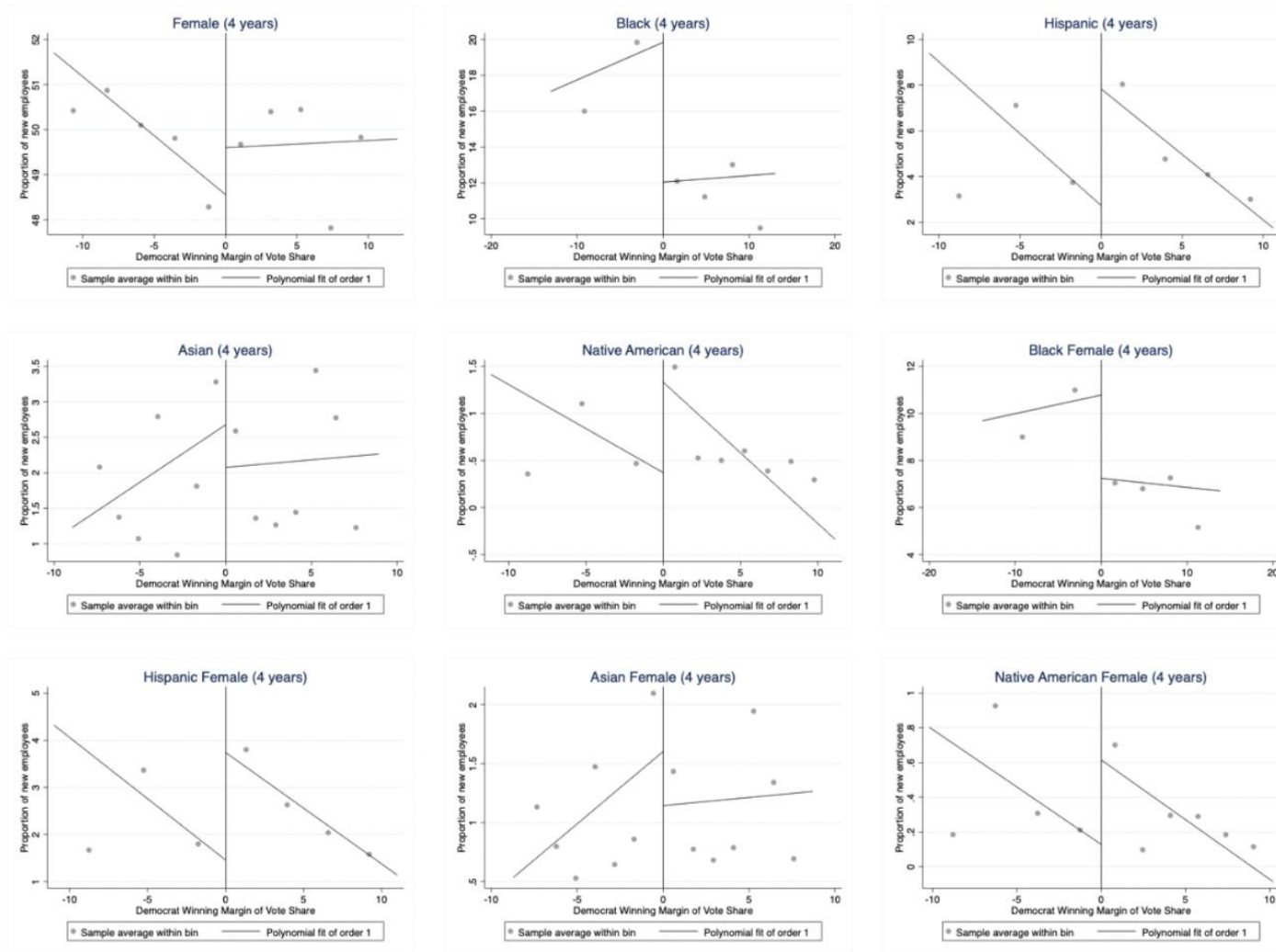


Figure 4.3a Impacts of Governor’s Partisanship on Proportions of Newly Hired Minority Public Employees (point estimates)

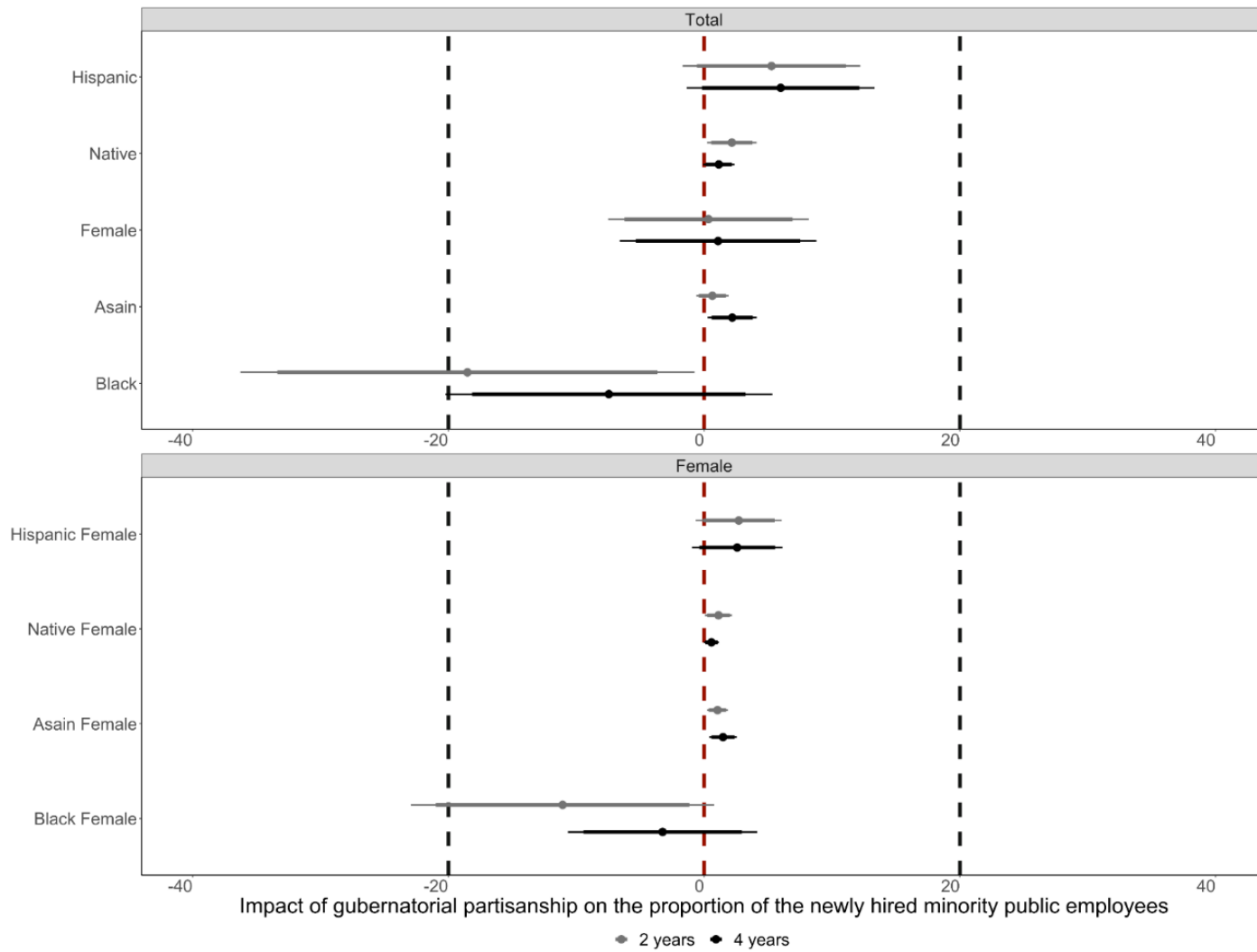


Table 4.2b Impacts of Governor’s Partisanship on Salary of Minority Public Employees

Models	DV: Median Salary of Public Employees							
	2 year		4 year		2 year		4 year	
	no covs	covs	no covs	covs	no covs	covs	no covs	covs
minority group	Black				Black Female			
RD Estimate	-1628.2	-554.65	-3834.5	1255.8	-642.85	1272	-4648.2	-986.25
SE	6604.1	1199.4	7301.7	1091.2	6602.2	1560.1	8283.3	1723.9
N left	66	43	53	32	66	43	53	32
N right	58	48	52	40	58	48	52	40
minority group	Hispanic				Hispanic Female			
RD Estimate	-4825.3	126.55	-1367.4	2842.6	-3665.5	-654.23	-2475.6	3074.2*
SE	6594.4	1289.5	7338.1	2049.5	6757.3	1539.8	7609.7	1763.9
N left	66	43	53	32	66	43	53	32
N right	58	48	52	40	58	48	52	40
minority group	Asian				Asian Female			
RD Estimate	-1113.1	-2009.1	-3174.6	-565.35	1271.8	-1243	-3316.5	-3509.5
SE	7396.6	3012.1	7530.9	2807.9	7645.9	3233.3	8526	3208.3
N left	66	43	53	32	66	43	53	32
N right	58	48	52	40	58	48	52	40
minority group	Native				Native Female			
RD Estimate	-3737.9	-160	-2903	2490.6	-1392.3	5112.4***	-1980.5	2899
SE	6926.9	1271.7	8222	1571.7	6726.6	1824.1	8828.2	3424.1
N left	66	43	53	32	66	43	53	32
N right	58	48	51	39	58	48	51	39
minority group	Female							
RD Estimate	3239.1	-672.13	-1914.7	-2694.5				
SE	5537.2	1452.2	8679.3	1920.2				
N left	43	30	32	31				
N right	48	35	40	34				

Note: All models use local polynomial (nonparametric) functions with triangular kernel and the MSE-optimal bandwidth for the running variable as recommended by Cattaneo et al. (2019) and Calonico et al. (2014). Robust standard errors clustered at state level in parentheses. For levels of significance, *significant at .1, **significant at .05, ***significant at .01.

Figure 4.2c Plotted impacts of governor's partisanship liberalism on salary of minority public employees

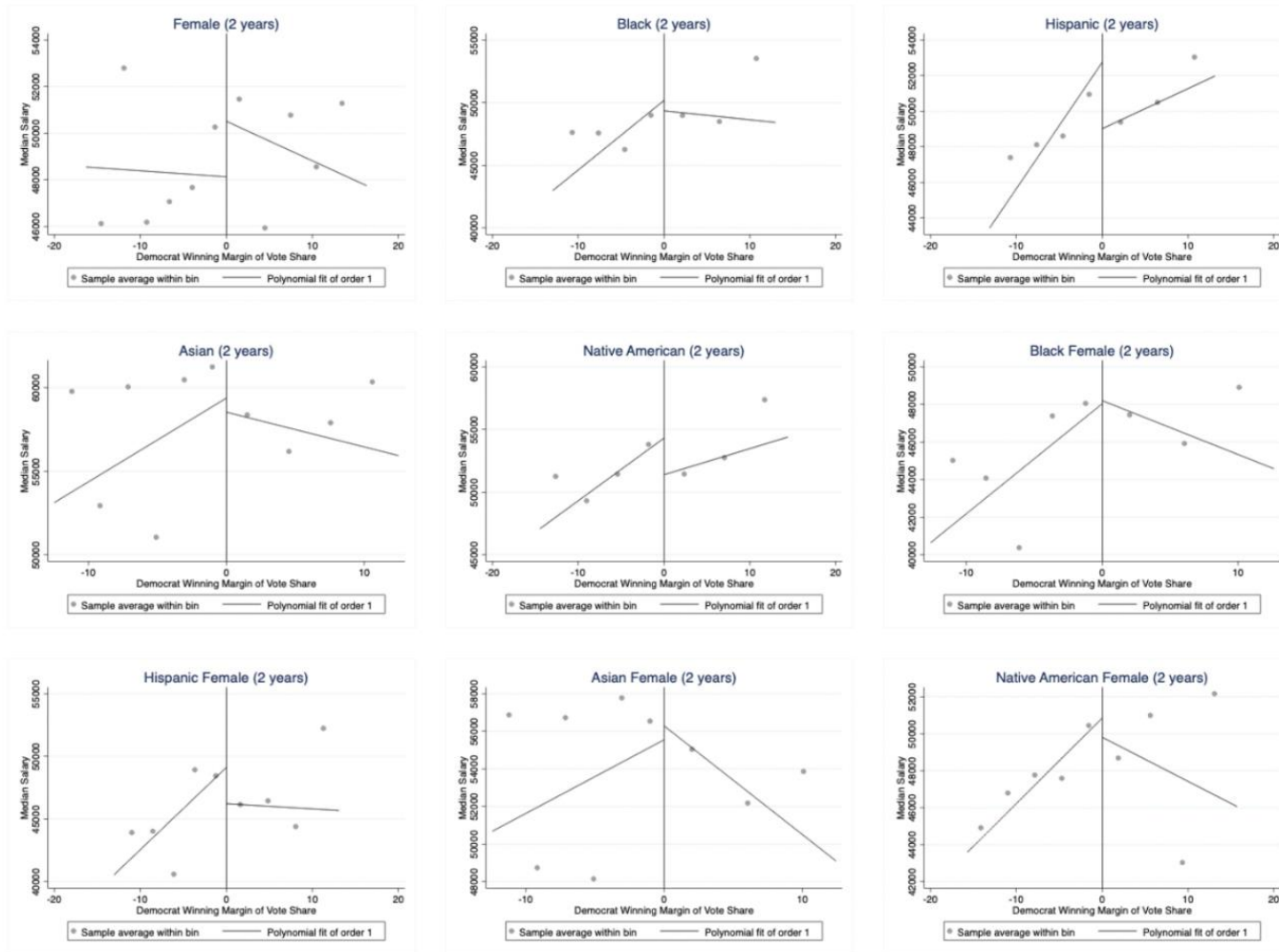


Figure 4.2d Plotted impacts of governor's partisanship liberalism on salary of minority public employees

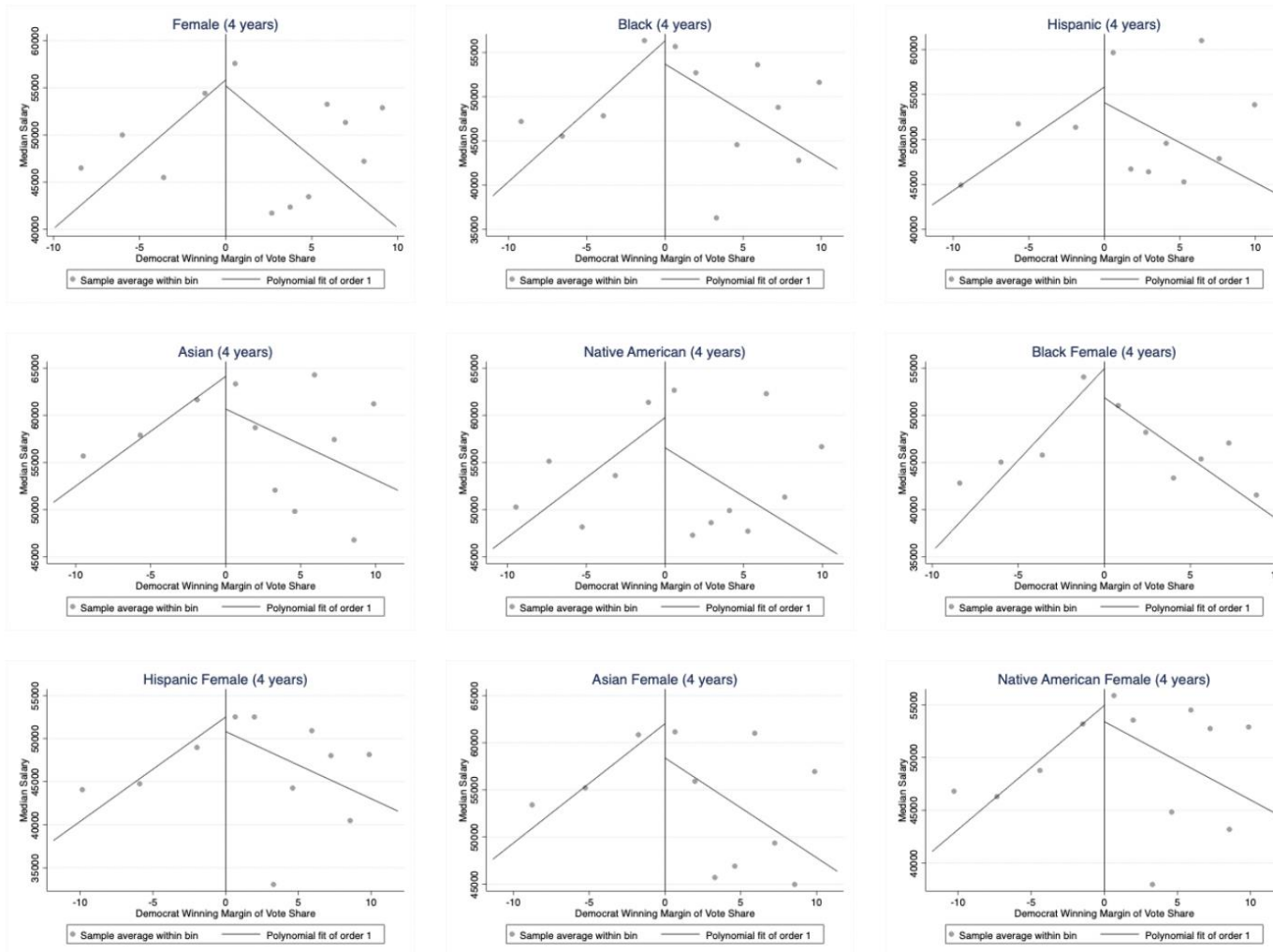
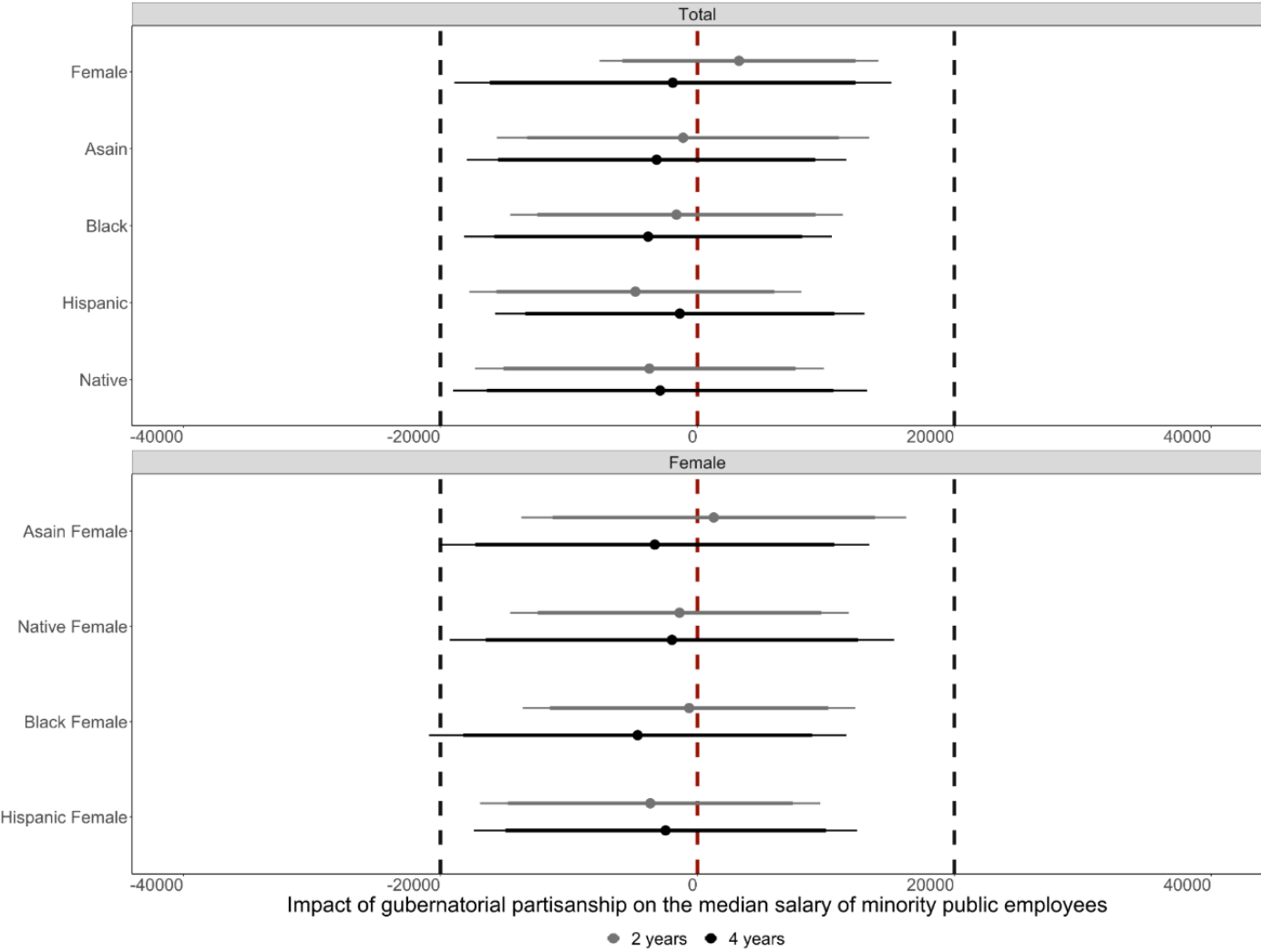


Figure 4.3b: Impacts of governor’s partisanship liberalism on salary of minority public employees



4.8.2 Impacts under Different Institutional Pressures

In order to examine the impacts of top political executives' partisanship on bureaucratic representation under different institutional pressures, it is necessary to observe RD models using the subsamples of units only with institutional pressure identifiers. Figure 4.4a-4.4b present data-driven point estimates for the impact of governor's partisanship on the proportion of newly hired public employees and median salary of current public workers from individual minority groups 2 and 4 years after gubernatorial elections under different institutional pressures. These figures depict point estimates with 90% and 95% confidence intervals in different colors that reflect the effects of governor's partisanship on the above-mentioned variables under varying institutional pressures. The point estimates for subsamples of institutional pressures were computed using the nonparametric design outlined earlier to estimate the overall effects of governor's partisanship in full samples, as presented in Tables 4.3a and 4.3b.

As showed in Figure 4.4a, and Table 4.3a, the impacts of governor's partisanship on proportion of newly hired public employees from certain minority groups were amplified under specific institutional pressures as suggested in H3-H5. For the minority groups significantly affected regardless of institutional pressures, the positive impacts of Democratic governorship on the proportion of newly hired minority public employees were observed in all these groups under different institutional pressures. Specifically, when there was a party transition or an open-seat gubernatorial election (mimetic pressure), the

proportions of newly hired Native American and Native American female public employees both 2 and 4 years after the gubernatorial elections were higher in government led by Democratic governors than their Republican counterparts, with effect sizes greater than those observed in the full sample regardless of institutional pressures. Similarly, when the state legislature and executive branch were controlled by the same party (normative pressure), the proportion of newly hired Asian public employees 2 and 4 years after the gubernatorial elections, as well as that of newly hired Asian female employees 4 years after the gubernatorial elections, were greater in government led by Democratic governors than their Republican counterparts. Notably, the effect sizes were greater than those observed in the full sample regardless of institutional pressures. Surprisingly, the unexpected negative impacts of Democratic governorship on the proportion of newly hired Black and Black female public employees 4 years after the gubernatorial elections were also observed under mimetic pressures, with greater effect sizes.

The amplifying effects of the specified institutional pressures were also identified when the outcome was the median salary of current minority workers. As presented in Figure 4.4b and Table 4.3b, the impacts of governor's partisanship, which were not observed in models without considering different institutional pressures, were found significant when these pressures were considered, which partly supported H2. In specific, when the state legislature and executive branch were controlled the same party (normative pressure), the median salary of current female, Black, Black female, and Hispanic public workers 4 years after the gubernatorial elections were significantly greater in governments

led by Democratic governors than their Republican counterparts. Similarly, when there were state legislations against discrimination in workplace (coercive pressure), the median salary of current female, Black, and Black female public workers 4 years after the gubernatorial elections were significantly greater in governments led by Democratic governors than their Republican counterparts. Additionally, when there was a party transition or open-seat gubernatorial election (mimetic pressure), the median salary of current Asian public workers 4 years after the gubernatorial elections were significantly greater in governments led by Democratic governors than their Republican counterparts. However, none of the institutional pressures changed the null effect of governor's partisanship on median salary of public workers from any minority groups 2 years after the gubernatorial elections.²⁹

²⁹ Similar to the analysis conducted on the full sample, the study's RD models, which included covariates and second-order polynomials for the running variable of Democratic vote share margin of victory, also revealed significant impacts of governor's partisanship on the proportions of newly hired public workers and the median salary of current workers from diverse minority groups within subsamples with institutional identifiers. These findings suggest that the amplifying effects of different institutional pressures, estimated in this study, are robust and reliable.

Table 4.3a Moderating Effects of Institutional Pressures (DV: Proportion of Newly Hired employees)

Moderating effects of institutional pressures																
DV: Proportion of Newly Hired Employees																
Models	2 years				4 years				2 years (only female)				4 years (only female)			
	general	mimetic	normative	coercive	general	mimetic	normative	coercive	general	mimetic	normative	coercive	general	mimetic	normative	coercive
Minority Group	Black								Black Female							
RD Estimate	-18.51**	-4.0532	4.6641	-8.5284	-7.452	-18.075**	-2.0975	-1.9484	-11.067*	-1.8596	4.0108	-3.9781	-3.2489	-9.7908**	-0.07595	-3.5507
SE	9.0586	9.9957	12.034	19.678	6.5235	6.9741	11.179	13.617	6.0512	6.3643	6.8584	11.511	3.7745	4.294	6.0739	6.2833
N left	69	39	37	27	66	36	35	27	69	39	37	27	66	36	35	27
N right	62	35	31	36	65	35	33	38	62	35	31	36	65	35	33	38
Minority Group	Hispanic								Hispanic Female							
RD Estimate	5.265	6.3742	1.7916	5.252	5.9852	7.5921	4.2746	2.6873	2.7086	3.5806*	1.0478	2.1538	2.5844	3.6379	1.6206	0.50946
SE	3.5476	4.2161	4.0085	9.581	3.7509	5.1372	4.5288	7.6999	1.7122	2.1659	1.9604	4.4694	1.8026	2.6083	2.2055	4.23
N left	69	39	37	27	66	36	35	27	69	39	37	27	66	36	35	27
N right	62	35	31	36	65	35	33	38	62	35	31	36	65	35	33	38
Minority Group	Asian								Asian Female							
RD Estimate	0.64108	0.67533	1.3999*	2.6653	-0.76054	0.57826	2.0341*	0.67139	0.26425	0.11203	0.64772	1.3327	-0.60124	-0.0049	1.1481*	0.30957
SE	0.64706	0.9605	0.8013	2.3118	0.97942	1.2377	1.131	2.2415	0.41357	0.58326	0.53155	1.2359	0.54993	0.68455	0.62803	1.0482
N left	69	39	37	27	66	36	35	27	69	39	37	27	66	36	35	27
N right	62	35	31	36	65	35	33	38	62	35	31	36	65	35	33	38
Minority Group	Native								Native Female							
RD Estimate	1.6406*	2.6529*	1.1985	1.228	1.1463	2.035**	0.71017	1.1127	0.94705*	1.4617**	0.6167	0.34094	0.57289*	0.82908**	0.09361	0.53874
SE	0.98444	1.3748	1.9106	1.0072	0.62528	0.99459	1.2329	1.0778	0.53636	0.73967	1.0321	0.53885	0.29768	0.42084	0.48259	0.5394
N left	69	39	37	27	66	36	35	27	69	39	37	27	66	36	35	27
N right	62	35	31	36	65	35	33	38	62	35	31	36	65	35	33	38
Minority Group	Female															
RD Estimate	0.33779	2.1766	1.1387	2.3557	1.0897	-0.99728	-1.5748	-4.2888								
SE	4.0038	5.3082	5.3629	5.8924	3.926	6.6773	6.9652	6.393								
N left	69	39	37	27	66	35	35	27								
N right	62	35	31	36	65	36	33	38								

Note: All models use local polynomial (nonparametric) functions with triangular kernel and the MSE-optimal bandwidth for the running variable as recommended by Cattaneo et al. (2019) and Calonico et al. (2014). Robust standard errors clustered at state level in parentheses. For levels of significance, *significant at .1, **significant at .05, ***significant at .01.

Figure 4.4a Moderating Effects of Institutional Pressures on New Employment

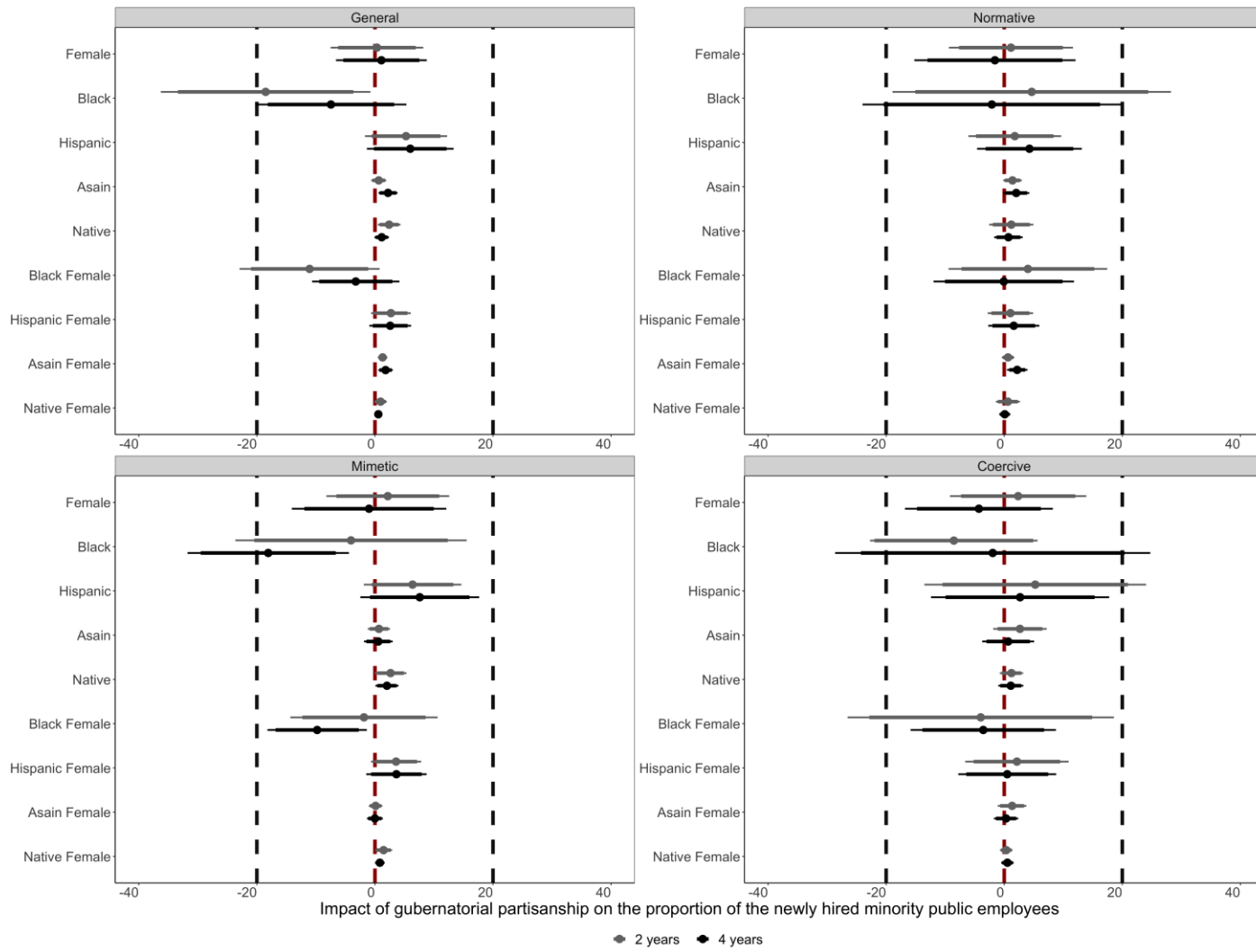
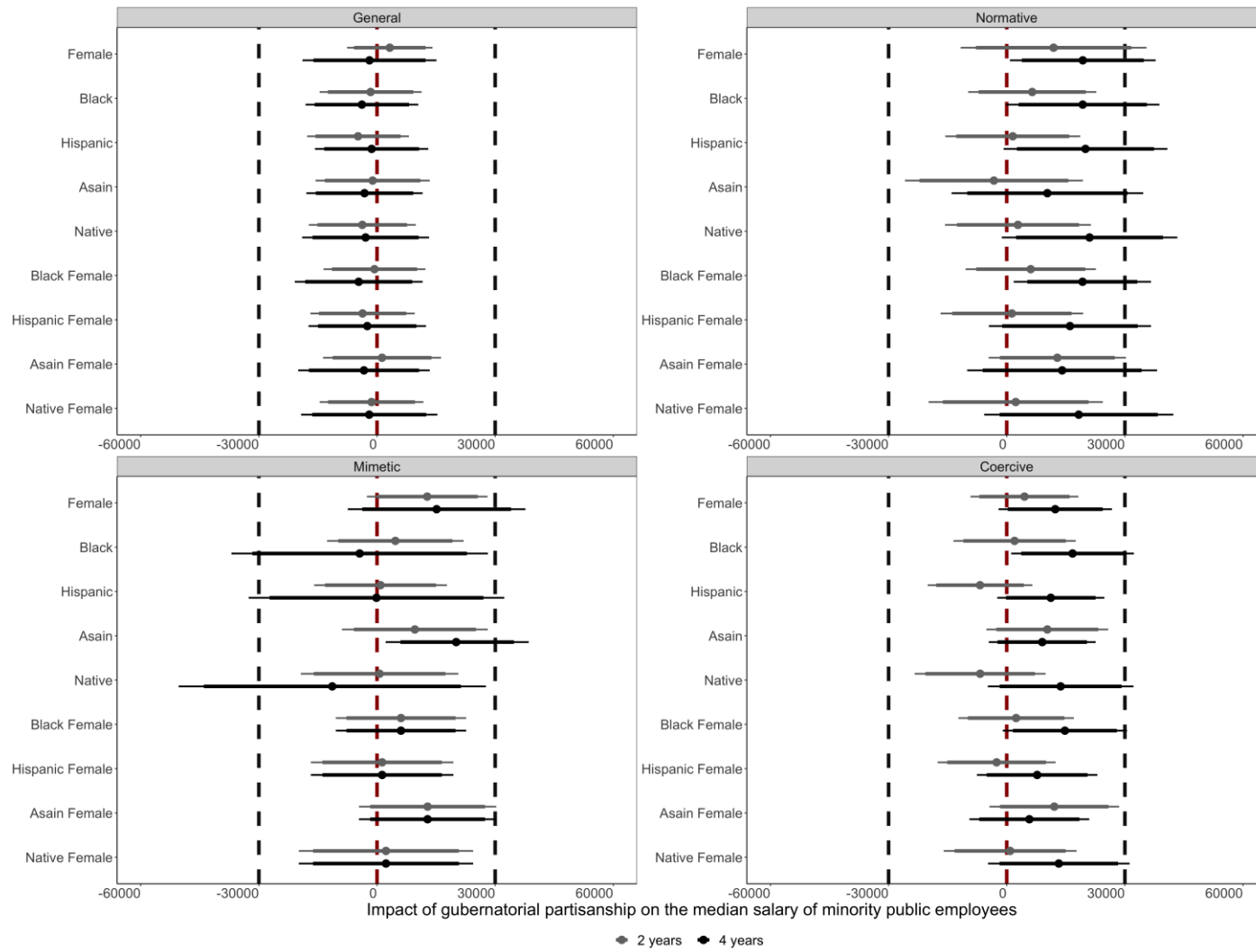


Table 4.3b Moderating Effects of Institutional Pressures (DV: Median Salary of Minority public employees)

Moderating effects of institutional pressures																
DV: Median Salary of Public Employees																
Models	2 years				4 years				2 years (only female)				4 years (only female)			
	general	mimetic	normative	coercive	general	mimetic	normative	coercive	general	mimetic	normative	coercive	general	mimetic	normative	coercive
minority group	Black								Black Female							
RD Estimate	-1628.2	4657	6465.5	1994.5	-3834.5	-4409.9	19293*	16710**	-642.85	6086.4	7967.1	2378.4	-4648.2	-6213.4	19250*	14763*
SE	6604.1	8845.9	8298.1	7921.9	7301.7	16609	9932	7950.2	6602.2	8443.7	8276.4	7478.4	8283.3	16318	10872	8051.3
N left	66	37	36	41	53	27	32	36	66	37	36	41	53	27	32	36
N right	58	32	39	44	52	22	28	41	58	32	29	44	52	22	28	41
minority group	Hispanic								Hispanic Female							
RD Estimate	-4825.3	890.97	1530.3	-6776.3	-1367.4	-141	19991*	11190	-3665.5	1300.8	1587	-2572	-2475.6	-2226.4	16050	7722
SE	6594.4	8600.5	8741.5	6786.9	7338.1	16555	10611	6937.1	6757.3	9239.2	9022.5	7641	7609.7	18363	10502	7803.2
N left	66	37	36	41	53	27	32	36	66	37	36	41	53	27	32	36
N right	58	32	29	44	52	22	28	41	58	32	29	44	52	22	28	41
minority group	Asian								Asian Female							
RD Estimate	-1113.1	9612.9	-3253.4	10308	-3174.6	-20071*	10319	9012.5	1271.8	12844	1103.4	12075	-3316.5	-20163	14065	5744.4
SE	7396.6	9444.5	11526	7885.8	7530.9	11712	12415	6923.6	7645.9	8891.3	11590	8402.7	8526	13831	12304	7759.9
N left	66	37	36	41	53	27	32	36	66	37	36	41	53	27	32	36
N right	58	32	29	44	52	22	28	41	58	32	29	44	52	22	28	41
minority group	Native								Native Female							
RD Estimate	-3737.9	650.23	2851.8	-6752.6	-2903	-11363	21031*	13687	-1392.3	2277	3660.6	862.01	-1980.5	-11151	18284	13224
SE	6926.9	10203	9447.9	8483.1	8222	19903	11373	9437.4	6726.6	11289	9243.5	8600.1	8828.2	19517	12250	9168.3
N left	66	37	36	41	53	27	32	36	66	37	36	41	53	27	32	36
N right	58	32	29	44	51	22	27	41	58	32	29	44	51	22	27	40
minority group	Female															
RD Estimate	3239.1	12747	11894	4496.1	-1914.7	15133	19313**	12314*								
SE	5537.2	7818.4	12035	6987.6	8679.3	11509	9438.6	7344.4								
N left	43	28	20	27	32	20	17	22								
N right	48	27	25	33	40	17	22	31								

Note: All models use local polynomial (nonparametric) functions with triangular kernel and the MSE-optimal bandwidth for the running variable as recommended by Cattaneo et al. (2019) and Calonico et al. (2014). Robust standard errors clustered at state level in parentheses. For levels of significance, *significant at .1, **significant at .05, ***significant at .01.

Figure 4.4b Moderating Effects of Institutional Pressures on Salary



4.9 Discussion: Does Executive Leader's Partisanship Matters?

The RDD results indicate that the hypothesized effect of executive leader's partisanship on bureaucratic representation were partially confirmed in the setting of American states. There were socially underrepresented groups demonstrating the increase in both proportion of the newly hired employees and the improvement in compensations for the current workers in governments led by more liberal Democratic governors. And such significant impacts still existed and were even amplified for some minority groups by certain institutional pressures.

The impact of a governor's partisanship on the representation of minority groups in the public workforce can be observed through both the proportion of newly hired employees and the compensation of current workers. Our findings suggest that the ideology of the chief executive can affect the attractiveness of public organizations to job-seekers from minority groups—at least Asians and native Americans. This confirms the existing literature indicating that people from minority identities tend to support Democratic governments more than their Republican counterparts (e.g., Abramowitz, 2010; Fiorina & Abrams, 2008; Adams & Merrill, 2008). However, we did not find evidence of generally higher pay for minority public workers when the governor was a Democrat. This suggests that Democratic governors did not actively improve the compensation of minority public workers, despite the higher level of attractiveness of their governments to minority applicants. Furthermore, our results suggest that the increased political polarization did not lead to changes in gubernatorial efforts to improve the treatment of minority public workers. In American states, the impact of a governor's partisanship on bureaucratic representation

is more likely to occur through a symbolic approach, shaping the attractiveness of public organizations to minority job-seekers such as Asians and native Americans, than through substantive policy behaviors.

The results from models for institutional pressures imply that the impacts executive leader's partisanship on shaping bureaucratic representation can be moderated by the specific institutional pressures. Specifically, the effects of governor's partisanship on the proportion of newly hired minority public employees were found to be amplified by certain institutional pressures. For instance, the mimetic pressures from party transitions or open-seat elections amplified the significant impacts of governor's partisanship on native Americans and native American females. Moreover, the normative pressures from same party control of state legislative and executive branches amplified the significant impacts on Asians and Asian females. These results suggest that the pressure of obtaining electoral support and the same party control over the executive and legislative branches may accelerate the assimilation of ideological beliefs in dealing with DEI issues across executive leaders with the same partisanship. This may exacerbate the polarization in the bureaucratic representativeness of socially underrepresented groups between Democrat- and Republican-controlled governments in the U.S.

The findings from the model of moderating effects suggest that the median salary of female, Black, Black female, and Hispanic public employees is significantly impacted by the partisanship of governors only under certain institutional pressures. Specifically, when legislative requirements and ideological alignment between the executive and legislative branches exist, the treatment of minority employees is more disparate between Democratic and Republican-led governments. This differential treatment may result in

affected minority public employees actively serving their social counterparts through policy outcomes, a concept referred to as active bureaucratic representation (Andrews et al., 2014; Meier & Bohte, 2003; Sowa & Selden, 2003). Therefore, institutional pressures, as described in the theory of institutional isomorphism, can be viewed as a driving force behind the politicization of bureaucratic representation.

The empirical results also suggest the effects of governor's partisanship on the bureaucratic representation were also substantive for the intersectional groups. The results demonstrate that the public sector's attractiveness to intersectional groups, such as Asian females and Native American females, can be shaped by governor's partisanship, which influences the bureaucratic representativeness of these groups facing unique societal challenges that combine multiple forms of discrimination that single-dimensional identity groups may never encounter (Best et al., 2011; Parker & Hefner, 2015). Similarly, the results from the model with moderating effects suggest that under specific institutional pressures, public employees from specific intersectional groups, such as Black females, may receive different remuneration in governments controlled by different parties. This differential treatment may lead to different policy efforts by these officials to benefit their social counterparts, thereby indicating that the effectiveness of active representation for such extremely marginalized groups can also be influenced by executive leaders' ideology.

The effects of executive leader's partisanship on bureaucratic representation of minority groups were not always immediate. When examining the perspective of newly hired minority public employees, the positive impacts of Democratic governors were significant for the group of Native Americans and Native American females in both 2- and 4-year terms, while the groups of Asians and Asian females were affected significantly in

either 2- or 4-year term. This suggests that the positive impacts of governor's partisanship on public organizational attractiveness may not persist throughout gubernatorial terms and may not immediately increase the attractiveness of public agencies to certain minority groups. When examining the median salary of current minority public workers, the positive impacts of Democratic governors were significant only in the 4-year term for the affected minority groups. This indicates that it may take longer for executive leaders from more liberal parties to benefit public employees substantively through their authority on allocation of administrative resources than through symbolic effects, such as changing their government's public image.

It is also noted that the positive impacts of Democratic governors were not identified or even backlashed on the bureaucratic representation of certain minority groups. Surprisingly, negative coefficients suggest that public agencies became less attractive to Black individuals under the leadership of a Democratic governor. Several factors could contribute to this phenomenon, including personal experiences or perceptions, different priorities and policies, and competition with other employers. For example, the finding that Democratic governors did not significantly increase the median salary of Black public employees in state and local government could contribute to negative experiences or perceptions, as Black candidates may have expected or hoped for a pay increase that did not materialize. This could lead to disappointment or resentment, potentially influencing their decision to seek employment elsewhere. Moreover, the growing political conservatism within the Black community and the weak statistical relationship between Black Democratic identification and liberal ideology may also play a role in Black individuals' decisions about where to work (e.g., Huddy et al., 2015; Kinder & Kalmoe,

2017; 2001). Recent research has indicated that Black people's loyalty to the Democratic Party in the U.S. may be more an expectation of political behavior within the Black community rather than a spontaneous individual thought, which may also affect their willingness to work in the public sector in states with Democratic governors as a sense of obligation or social pressure may not be sufficient to motivate them to seek employment in the public sector (e.g., Wamble et al., 2022). Finally, Black candidates may have other job opportunities available to them that are more attractive than working in the public sector, regardless of the political party of the governor. They may prioritize job security or advancement opportunities over the policies of the governor, or they may prioritize working for an organization that aligns with their personal values or goals, regardless of the political party of the governor.

Moreover, the insignificant treatment effects indicate that the political partisanship of top executives did not have an ideological impact on the public sector's attractiveness to Latino and Latina job-seekers, nor did it affect their treatment within public agencies. This could be attributed to the Latino community's diverse cultural and national origins, which may lead to variations in their party affiliations (Abrajano & Alvarez, 2011) and limited awareness of the ideological differences in DEI policies between the Democratic and Republican parties, stemming from their historical experiences of racism and exclusion (de la Garza, 2004; Leal et al., 2008).

4.10 Conclusion

This study examined the role of executive leaders with their partisanship in establishing diversity and representation in public workforce and how it is contingent to

different institutional pressures. By constructing the theoretical framework for the relationship between establishment of bureaucratic representation, executive leader's partisanship, and institutional environments and testing the hypotheses in the context of American states, the present research provides critical insights for the better understanding of how diversity and representation of people from socially underrepresented groups can be formulated. While the merit-based civil service system seems to contribute to the value-neutral bureaucratic representativeness of socially underrepresented groups in the public agencies, the politically elected executive leaders can be powerful to reshape the public personnel and thus bureaucratic representation. And the impacts of executive leader's partisanship on bureaucratic representation can vary under different institutional pressures stemmed from the party competitions for legislative and executive branches.

This study can significantly advance the inquiries of representative bureaucracy and DEI in public service in several ways. First, it underscored the political consideration of public employment for socially underrepresented groups alongside merit system. On the one hand, since merit system provide relatively value-neutral procedures for government hiring at the demand side, the politization of public employment manifested more from the newly hired employees at the supply side. The attractiveness of government as an employer to socially underrepresented groups may be affected by the perceived ideological differences between parties. This suggests that the perceived ideological differences between executive leaders' party affiliations can still affect socially underrepresented people's choice of working in government, despite hiring decisions being expected to rely on merit and qualifications rather than political considerations (e.g., Hays & Kearney, 1990; Mosher, 1982; Ingraham, 1995; Ban & Ingraham, 1990; Moynihan & Ingraham, 2010;

Skowronek et al., 2021). On the other hand, different compensation status of minority public employees as a result of governor' partisanship can still be found under certain institutional pressures, though governors of different parties in general did not significantly change minority bureaucrats' salary. This suggests that certain institutional pressures resulting from party competition over legislative and executive branches can enable the executive leaders with different partisanshipes to politicize the treatment of employees from socially underrepresented groups.. Thus, public employees from socially underrepresented groups may be more susceptible to agency resource reallocations or reorganizations that are influenced by agency heads, who can be politically appointed by executive leaders and, therefore, more responsive to their demands. (Hollibaugh et al., 2014; Lewis & Waterman, 2013; Ouyang et al., 2017; Enns-Jedenastik, 2016). Overall, despite being designed to be objective and unbiased, political factors can still affect the decision of socially underrepresented individuals to work in government, enabling executive leaders to politicize merit-based public employment and actively shape the composition of the public workforce.

Besides, the analysis in this study also implies that promoting diversity and representation in the public workforce can have ideological implications. First, changes in new employment indicate that governments led by more liberal parties may have an advantage in attracting socially underrepresented individuals to join the public workforce. The partisanship of executive leaders can influence the attraction and retention of employees from these groups, with more liberal governments potentially better equipped to promote equity and inclusivity within their agencies. This is due in part to their ability to effectively communicate a commitment to diversity and social justice, which may be

appealing to socially underrepresented employees (Jurgenson, 1978; Rynes et al., 1983). Increased recruitment of individuals from these groups can also contribute to greater descriptive representation within the public bureaucracy, enhancing the perceived legitimacy of government among socially underserved populations (Ricucci & Van Ryzin, 2017; Nicholson-Crotty et al., 2016; Theobald & Haider-Markel, 2009). Additionally, changes in compensation status indicate that, under certain institutional pressures, governments led by more liberal parties may provide better working environments for public employees from socially underrepresented groups. Although individual agency heads typically make these decisions, they may be influenced by the commitment to diversity and social justice of more liberal executive leaders. By promoting greater equity and inclusivity within their agencies through better working conditions for public employees from socially underrepresented groups, more liberal governments can foster a sense of commitment and dedication among these employees towards better serving their citizenry (Andrews et al., 2014; Meier & Bohte, 2003). Thus, executive leader's partisanship can work to promote diversity and representation in public sector as the basis for achieving DEI in the public service.

The significant moderating effects of different institutional pressures have several implications. Firstly, increasing public organizational attractiveness to minority people can be a strategy for more liberal party candidates to win gubernatorial elections in American states (Caughey et al., 2017; O'Brien, 2019; McCarty et al., 2006). However, those reelected for the governorship may focus less on the representation of minority groups in the bureaucracy than they did in their first terms. Similarly, same-party control of the legislature and executive branch may help remove barriers for the governors to promote

workforce diversity by attracting more minorities to join the public sector. Moreover, the competition between political parties for control over state legislatures and executive branches may create a political atmosphere that motivates executive leaders to prioritize the treatment of public employees from socially underrepresented groups. (e.g., DiMaggio & Power, 1983; Schickler, 2016). Overall, the impact of executive leader's partisanship on fostering diversity in public workforce can be determined by institutional environments.

Additionally, the impact of executive leaders' political affiliations on the politicization of bureaucratic representation varies among different socially underrepresented groups. The governor's partisanship was found to significantly affect the proportions of newly hired Asian, Native American, Asian female, and Native American female public employees, as well as the median salary of current female, black, and black female workers. This suggests that the governor's partisanship may affect not only the bureaucratic representation of single-dimensioned but also intersectional socially marginalized groups. Future research can explore how such politicized personnel decisions shape bureaucratic representation of intersectional groups with unique disadvantageous social status. (Bearfield, 2009; Riccucci, 2009; Fay et al., 2020). However, this study unexpectedly found null effects of the governor's partisanship on bureaucratic representation of Hispanics and Hispanic females, and even negative impacts on bureaucratic representation of blacks and black females. Future research needs to investigate the reasons for the indifference or even resistance of such minority groups to the more liberal executive leaders which may contribute to the effective bureaucratic representation of other minority groups.

This study maintains some limitations. One limitation is the lack of information

about detailed agency demographics at both the state and local levels and personnel policies of governors and their appointed agency heads. This prevented an examination of the specific decisions made by executive leaders that ideologically differentiate the demographic compositions of public workforces at different government levels, which requires further exploration. Moreover, the available data in this study was insufficient to determine whether the ideologically affected income levels of minority public workers can truly determine their motivations to serve their demographic counterparts in citizen clients (e.g., Andrews et al., 2014; Sowa & Selden, 2003). Additionally, this study did not investigate other measures of bureaucratic treatment affected by executive leader's partisanship. Finally, this study only examined how institutional pressures were formed to affect the establishment of representative bureaucracy in the U.S. during a relatively recent period, which requires further exploration of such impacts in a longer period.

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Chapter 5

Gender Representation in Public Organizations Under Labor Shortage: Can It Still Motivate Citizens to Coproduce?

5.1 Abstract

Public sector is recently threatened by the unpredictable loss of workforce because of the COVID-19 pandemic which might still last for years. Gender representation in the public agencies is frequently found to motivate people to coproduce public services in which females tend to be the victims, underrepresented, or disadvantaged. However, it is unknown whether such benefit still exists if the public agencies lack available workforce to deliver public service. This study conducted a survey experiment on 1,000 participants representative of the demographics in the U.S. to explore the impact of the public organizational labor shortage on the beneficial relationship between gender representation and citizen coproduction in the context of domestic violence. Labor shortage was found to mitigate the positive effect of gender representation on citizen coproduction, and the effects of gender representation and labor shortage varied under different conditions. The findings from this study contribute to the research on representative bureaucracy, coproduction, and domestic violence policies by identifying the conditions that enable the descriptive representation of the socially underrepresented groups in public organizations to motivate citizenry coproduction of public services.

5.2 Introduction

Bureaucratic representativeness in the public organizations is frequently argued to be one of the most salient indicators of favorable policy and social outcomes toward the demographically represented focal groups in the citizen clients (Meier & Morton, 2015; Kennedy, 2014). Conceptually, the substantive policy and social effects of demographic representation in the public bureaucracy can be achieved through two types of micro-foundation mechanisms being variously explored (Andrews et al., 2014; Meier & Morton, 2015). On the one hand, bureaucrats sharing demographic backgrounds with the citizenry were recurrently found to push for the needs and interests of those focal groups being served through bureaucratic behavioral actions, i.e., active representation (see, e.g., Mosher, 1968; Meier & Stewart Jr, 1992; Keiser et al., 2002; Meier & Nicholson-Crotty, 2006). On the other hand, the argumentation of effective bureaucratic representativeness in administrative institutions is underdeveloped with respect to the circumstance when the social origins of bureaucrats are able to induce certain attitudes or behaviors on the part of clients, without the bureaucrat taking any action, i.e., symbolic representation (Bradbury & Kellough, 2008; Theobald & Haider-Markel, 2009).

Through the second mechanism, the rise in the focal citizen clients' perceived legitimacy of government agencies resulted from the increased bureaucratic representativeness can promote the demographically represented citizens' willingness to coproduce public services.³⁰ The positive effects of bureaucratic representation on

³⁰ Despite the lack of clear, consistent definitions, citizen coproduction in essence requires citizens to interact with public organizations in a broad array of activities that pursue a public good or service (Nabatchi et al., 2017). The role transformation of citizen clients from passive users to active influencers over the consumptions of public service in coproduction suggests the characteristics of public service provision can be increasingly affected by the perception and behaviors of citizens (Osborne & Strokosch, 2013; Averill, 1973). More importantly, coproduction is not just "giving users a say" but making them becoming "partial" employers (Dunston et al., 2009; Kelley et al., 1990). Citizen clients are asked to take over part of the service delivery functions by not only providing ideas for the service creation, but also investing behavioral efforts, time, and other resources (Hsieh et al., 2004).

citizenry coproduction have been frequently found in many policy areas such as fire service, recycling, law enforcement, equal employment, children support, rural housing, and parental involvement in schools (see, e.g., Andrews, et al., 2014; Riccucci, et al., 2016; Riccucci, et al., 2018; Rasul & Rogger, 2015; Gade & Wilkins, 2012; Vinopal, 2018; Wilkins & Keiser, 2006). Among them, gender representation in the public bureaucracy was frequently found to improve public legitimacy of government agencies and motivate citizenry coproduction behaviors in public service. Such symbolic effects from gender representativeness in the public bureaucracy were frequently found in the policy fields where females tend to be the victims, underrepresented, or disadvantaged. Apart from education, instances include the increased willingness of women to coproduce in the filing of sexual assault reports and arrests, child support, training for the unemployed (Meier & Nicholson-Crotty, 2006; Schuck, 2018; Wilkins, 2007; Wilkins & Keiser, 2006; Agyapong, 2018; Keiser et al., 2002; Song, 2018; Zhang, 2019).

However, regardless of which socially marginalized groups were examined to be represented in the public bureaucracy, most studies merely recognized the substantive benefits of demographic representation in public bureaucracies through a symbolic approach in terms of motivating citizen coproduction in different contexts. Admittedly, the few studies analyzing the conditions enabling such a mechanism (e.g., Headley et al., 2021) suggest that the mere presence of demographic representation might not sufficient to generate the active coproduction behaviors from the citizens. Similarly, in a replication works to reexamine the symbolic effect of gender representation, Sievert (2021) did not find a positive effect of symbolic gender representation on willingness to co-produce in the context of prisoner rehabilitation. This suggests the necessity of exploring the contextual

determinants of effective symbolic representation in terms of the increased willingness of citizen coproduction.

Labor shortage in the public sector has become an increasingly serious issue due to the massive demographic changes resulted from multiple crises at both country and global levels. Labor shortage is broadly defined as the general situations where “employers have difficulties finding workers to fill available positions” (Government of Alberta, 2006, p. 2). Under such definition, labor shortage can affect each and every sphere of economy from the entire global economic system to the merely few occupations. Of all the sectors influenced by labor shortage, public sector has been argued to be affected by the labor shortage more than private sector and other nongovernmental realms since public service delivery by its very nature is labor-intensive and requires extensive labor resources. This is especially the case at local level since those frontline agencies are responsible for providing core government services (Briffault & Reynolds, 2016; Gregory & Borland, 1999). More importantly, the novel coronavirus as a global public health pandemic has plagued the public workforce and caused significant labor shortage in the delivery of public service (Richards et al., 2021; Vilendrer et al., 2021; Hung & Lam, 2020). In order to maintain and rebuild the public organizational capacity and legitimacy during the COVID19 pandemic, it is necessary to examine the impacts of labor shortage on the positive mechanisms in the public organizations that help improve public service outcomes, and the demographic representation in the public bureaucracy is the one needs special attention.

Thus, this study attempts to answer the following research question: can female representation in the public bureaucracy still motivate citizen coproduction in the public

service then the public organization faces labor shortage in its workforce? Conducting a survey experiment in the policy area of domestic violence (DV), the widely assumed positive effects of gender representation on citizen willingness to coproduce were supported for certain coproduction activities, and the perceived labor shortage in the public workforce was found to neutralize such positive effects of gender representation for the public safety outcomes. This study contributes to the research and practice of representative bureaucracy and coproduction from several perspectives. The relationship between bureaucratic representation, public organizational capacity, and citizen coproduction has been theorized from a perspective of trust and empirically tested in the context of domestic violence, which suggests the importance of trust and organizational capacity to the demographic representation in the public bureaucracy as a mechanism to mobilize civic support and participation in the delivery of public service. Moreover, the findings suggest that demographic representation (such as female) in the public bureaucracies make not be sufficient to drive citizens to coproduce public services, which calls for future research to explore the conditions that enable its symbolic benefits to the interaction between public organizations and citizens. Additionally, since public safety continues to be a major policy issue during the pandemic, which is especially the case for the socially disadvantaged groups such as women, the varied effects of gender representation and labor shortage on different types of coproduction activities in addressing DV may provide some guidance for the law enforcement bodies to redesign the civic-engagement policies or programs for the best use of the demographic diversity in public agencies.

5.3 Bureaucratic Representation of Gender, Organization Capacity, and Citizen

Coproduction: A Trust-Based Analysis

As suggested in the both literature of representative bureaucracy and coproduction, fostering bureaucrat-citizen trust resulted from public bureaucracies' capability as reflected in performance can be a possible path that leads demographic representation in public bureaucracies to the effectively motivated citizenry coproduction in the public service. Trust can rationalize citizen willingness to coproduce. Citizens may not always spontaneously take part in the coproduction activities in public service until relevant conditions are presented. Instances of these conditions include ability and self-efficacy at the side of citizens, and task complexity and knowledge at the side of public organizations (see, e.g., Jakobsen, 2013; Alford, 2009; Bovaird et al., 2015; Parrado et al., 2013). Of all the possible factors examined, people's evaluated government's trustworthiness was frequently found to be crucial for their willingness to coproduce. As van Eijk and Steen (2014, 2016) suggests, the extent to which people trust that government is willing to provide room for interaction affects their readiness to co-produce. Similarly, Fledderus and Honingh (2016) and Fledderus et al. (2015) stressed the importance of a trustful relationship between residents and public organizations in co-producing services. They found people's trust on governments can significantly reduce the discouraging effects resulted from their deficiency in public service, which needs to be addressed through coproduction. This is also evidenced by the findings from research on procedural justice that confidence in an institution indicates its legitimacy and resultant ability to elicit people's cooperation and compliance (Grimes, 2006; Tyler & Jackson, 2014). Additionally, the effect of incentives on willingness to coproduce is conditioned by trust in public organizations. Being the key predictor of compliant and cooperative behavior, trust does

not require supplementing with incentives. In contrast, when the attitude toward governments is negative, individual utility and financial rewards are highly important, while reputational rewards are redundant (Fledderus et al., 2014). After all, people are not interested in the reputation of co-operation with disliked and distrusted authorities.

Where can trust be generated from? Lewicki and Bunker (1996) categorized trust into three fundamental groups: identification-based trust, calculus-based trust, and knowledge-based trust. Identification-based forms when the truster and trusted identify each other's goals and effectively understand and value the other's wants. This type of trust was rooted in the traditional public service systems, which is based on either high level of predictability or the ascribed characteristics (See, e.g., Zucker's definition of process-based and characteristic-based trust (1986, p. 85)). On the contrary, Calculus-based trust is stemmed from one's calculation of other's rewards for being trustworthy (e.g., promotion) and cost of not being trustworthy (e.g., loss of reputation) (Lewicki & Bunker, 1996). And knowledge-based trust is based on the extent to which one is informed to predict future behavior and intentions; the more and better people are informed, the more likely they are to trust (Lewicki & Bunker, 1996). Thus, identification-based trust is essentially emotional while calculus- and knowledge-based trust are cognitive (Fledderus et al., 2010).

The definitions of three types of trust may suggest their different origins. First, identification-based trust emphasizes the match in the identified goals and values, which is highly contingent to the characteristics of the trusters and trustees. Applied to the public service, the citizen clients' identification-based trust on government may originate from the demographic representation of public bureaucracies. As suggested in the literature of symbolic representation, that the bureaucrats look like the citizens can make the citizens

move their expectations in a positive direction, which in turn will generate greater trust in the bureaucracy or a greater belief in the legitimacy of the encounter's process (Ricucci & Van Ryzin, 2017, p. 21). Likewise, the bureaucrats' shared social origins can enhance the represented citizen clients' positive views of governments in terms of trustworthiness, fairness, and legitimacy (Abney & Hutcheson, 1981; Bobo & Gilliam, 1990; Lim, 2006; Ricucci, et al., 2014; Gade & Wilkins, 2013; Marschall & Ruhil, 2007; Roch et al., 2018; Scherer & Curry, 2010). This is particularly the case for the groups that are historically underrepresented and when the policy area is salient to the identity in question (Keiser et al., 2002; Meier & Nigro, 1976; Van Ryzin, et al., 2017).

As one of these identity groups both underrepresented in the public workforce and the citizen clients of many policy areas, females with the increased presence in public bureaucracies are found to be associated with more favorable policy outputs for women and/or contribute to the citizen clients' perceived legitimacy of government. This can further generate identification-based trust since females' perceived fairness of government's decision-making procedure, i.e., throughput legitimacy as defined by Scharpf (1999) and Schmidt (2013), affects their overall trust in government authority and decision outcomes (see, e.g., Tylor, 2006). Instances for the contributions of female bureaucratic representation to fostering people's trust on public bureaucracies can be found in many policy areas. Women appear to be more willing to report sexual assaults in cities with more female police officers (Meier & Nicholson-Crotty 2006; Schuck, 2018). Beaman et al. (2012) showed that an increased number of female leaders on Indian village councils reduced the gender gap in adolescent educational outcomes and enhanced girls' aspiration level, although the results for women's labor market opportunities were not significant.

Similar findings in regard to gender have emerged in relation to equal employment complaints (Hindera, 1993), child support enforcement (Wilkins and Keiser 2006), rural home loan programs (Selden 1997), and parental involvement in schools (Vinopal, 2018). And the descriptive representation of female in the public bureaucracies can influence all citizens', not simply women, trust in the law enforcement agency (e.g., Riccucci et al., 2014; Andrews & Miller, 2013).

However, compared with the emotional identification-based trust, the cognitive calculus- and knowledge-based trust in public organizations may be developed through the more objective paths. The New Public Management (NPM) reforms in public service, grounded in public choice theory, perceived service providers as self-interested maximizers and introduced a more rational understanding of the "public service ethos". Moreover, they assumed the differed interests between the public service providers and citizen clients. As a result, citizen clients may feel too risky to directly trust the public service agencies to act on their behalf and provide high quality services so that they may have to find ways to exert certain levels of controls over public service delivery. As suggested by Van de Walle (2010), these ways or mechanisms created calculus- and knowledge-based trust apart from identification-based trust. Controlling, short-term contracts, and competition increased calculus-based trust relationships, while knowledge-based trust relationships were improved by performance management and more transparency through disaggregation. All these approaches are significant indicators of working capabilities of public organizations (e.g., Christensen & Lægreid, 2005; Kumlin, 2004; Van Ryzin, 2007; Vigoda-Gadot & Yuval 2003). In a same vein, a recent meta-analysis on the performance-link in public organizations suggested that the impacts of performance on trust in public organizations

were valid regardless of performance measures and government levels (Zhang et al., 2022). More importantly, this study found that most citizens react more strongly to what government produces than how much government invests in the public service, and that frontline agencies were more sensitive to the performance-trust relationship than their national counterparts (Zhang et al., 2022). Both findings suggest the importance of frontline agencies capabilities to the civic trust in public service provision.

Even though both bureaucratic representativeness in terms of its symbolic effects and public organizational capacity were found to significantly contribute to developing citizens' trust in public service agencies, whether the two factors as sources of different types of trust may affect each other on the function of fostering trust has not been examined yet. In other words, it is necessary to explore whether the frequently argued positive symbolic effects of demographic representation in the public bureaucracies on improving citizen trust and their willingness to coproduce is contingent to the working capacity of public organizations.

5.4 How Labor Shortage Shapes the Symbolic Effect of Gender Representation on Coproduction

As closely related to organizational capacity, labor shortage can be a threat to public organizations in motivating citizen clients to coproduce through a trust-based approach. Labor shortage in the public sector can be attributed to multiple issues as argued in the literature of public administration, generic management and economics. Earlier studies argued that the aging workforce can be one predictor of the shortage of manpower (see, e.g., Calo, 2008; Judy & D'Amico, 1997). Given fact that populations of developed

countries are aging rapidly due to decreased birth rates and longer life spans, the age demographics of many organizations suggest that an unprecedented loss of human capital is occurring and the trend will continue. The fastest growing segment of the workforce in the U.S., for instance, is individuals older than 55 years, whereas the population of workers who are between 35 and 44 years of age, which are considered the prime executive development years, is declining (Dychtwald et al., 2006). The longer job tenure in the public sector than the private sector tends to exacerbate the gap between demand and supply in human resource of public agencies.

Besides, more recent studies proposed that the enduring COVID19 pandemic has become another major cause of labor shortage in the public sector. The pandemic was found to affect the public workforce from generally three perspectives. First, the pandemic seriously affected the health conditions of frontline public workers, which resulted in massive temporary staff shortage as more officers called out sick or tested positive. The insufficient public workforce on duty also have to confront the increased social issues other than the infection itself such as public unrest due to the insufficient supply of daily necessities, hate crimes, domestic violence (Richards et al., 2021). Moreover, the pandemic is also shaking the mentality of the public workforce. Police officers, for instance, were already suffering from the organizational stressors such as shift changes and lack of departmental support coupled with the witnessing of multiple traumatic events which resulted in adverse outcomes including high rates of suicide, post-traumatic stress, and work-family conflict (Hartley et al. 2013; Karafa et al. 2015; Papazoglou 2017; Violanti et al. 2019). Additionally, the broader economic impact of the pandemic also shifted the public workers' financial conditions, which drive them to leave the public sector. It has

been frequently reported that many frontline public employees resigned because of the job dissatisfaction due to the low pay and difficult career advancement with increased responsibility under tense work environment and insecure working environment due to the potential layoffs from departmental budget cut (Vilendrer et al., 2021; Hung & Lam, 2020).

Labor shortage has been found to substantively affect public organizations in terms of organizational capacity and thus public legitimacy in certain policy fields. First, organizational capacity can be undermined by the labor shortage. Public organizations with insufficient workforce are threatened by the demographically defined capacity risk of losing accumulated knowledge and expertise (Strack et al., 2008). Historically in the U.S., workforce shortages limited the public sector's capacity to address existing population health needs and its flexibility to respond to emergency situations, which has been exacerbated by COVID-19 and thus also illuminated the pervasive racial and socioeconomic inequities in health care access, quality, and outcomes during the pandemic (Desalvo et al., 2021; ASTHO, 2020). Such deteriorating effect of labor shortage on the public organizational capacity can also be observed in prison management, public transport, and public utility maintenance (see, e.g., Vilendrer et al., 2021; Wallace et al., 2021).

Furthermore, the declining organizational capacity resulted from the insufficient workforce was argued to reduce the perceived legitimacy of government agencies. During the pandemic, for instance, the duties of police officials were expanding to encompass enforcement of physical distancing, travel restrictions, and mandatory quarantining which, if not operated effectively, were found to negatively impact the police-community relations, public trust, and confidence in the law enforcement agencies (Laufs & Waseem, 2020; Stogner et al., 2020; Jennings & Perez, 2020; Rothstein, 2015). As previously discussed,

organizational capacity and its resulted government legitimacy are important predictors of citizens' calculus- and knowledge-based trust on government, which can eventually determine citizen willingness to coproduce public services. Thus, labor shortage in the public organizations as a negative indicator of working capacities may hinder the public organizations to develop trust from citizen clients, which can eventually reduce their willingness to coproduce public services.

H1: Labor shortage in the public organizations negatively affects citizen willingness to coproduce public services

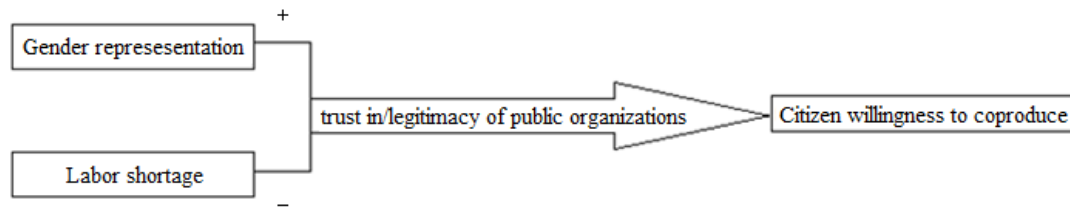
Apart from its direct impacts on public organization's working capacity, labor shortage may also moderate the effects of demographic representation in the public bureaucracies, which can generate the emotional identification-based trust among citizen clients. As one of the few works addressing the conditions of effective symbolic representation, Headley et al. (2021) argued that when a bureaucrat-civilian interaction is at odds with the shared beliefs originated from the demographic similarities, it may outweigh the symbolist benefits from the shared identities, including fostering the identification-based trust among citizen clients. In other words, the shared identities between bureaucrats and citizens only assumes a shared cultural connection in the initial encounter while the citizens' experience in that interaction will inform whether the mutual understanding or connection existed in the first place (Headley et al, 2021). This is particularly the case for a negative interaction as empirically tested by Headley et al. (2021), though the authors admitted they were unable to identify all the possible negative interactions that can wash out symbolic benefits from the demographic representation in the public bureaucracies. The aforementioned labor shortage in the public organizations

with its effects on limiting working capacities and illuminated socioeconomic inequities can generate such negative bureaucrat-civilian interactions, which may neutralize the symbolic effects of demographic representation especially on developing citizen trust in public organizations. Applied to the descriptive representation of female in the public organizations, the decline in citizen's calculus- and knowledge-based trust in public bureaucracies resulted from the labor shortage may offsets the enhanced citizen's identification-based trust developed from the increased proportion of female bureaucrats in service agencies of the policy areas where females were historically underrepresented and underserved (Keiser et al. 2002; Meier and Nigro 1976; Van Ryzin, Riccucci, and Li 2017). As a result, the symbolic effects of female representation in the public bureaucracies on increasing citizen willingness to coproduce public services can be less strong than the case when the public organizations do not suffer loss in public workforce. The assumed relationship between gender representation, labor shortage, and citizen coproduction is demonstrated in Figure 5.1.

H2: The increase in proportion of female bureaucrats in public organizations positively affects citizen willingness to coproduce public services

H3: Labor shortage in the public organizations negatively moderate the positive effects of female representation in the public bureaucracies on citizen willingness to coproduce public services

Figure 5.1 Interaction Between Gender Representation and Labor Shortage on Citizen Coproduction



5.5 Gender Representation and Coproduction in Addressing Domestic Violence

This study empirically tests the hypothesized relationship between gender (female) representation in the public bureaucracy, labor shortage in public organizations, and citizen willingness to coproduce in the context of domestic violence. The substantive effects of descriptive representation of female in the public bureaucracies are more likely to be identified when women are historically underrepresented or when gender issues are salient in the examined policy areas. Domestic violence (DV) is an especially suitable policy area to identify the effects of female representation in public bureaucracies because DV issues are strongly gender-based. First, DV are majorly experienced by women and the perpetrators are mostly men. According to the National Intimate Partner and Sexual Violence Survey, 25% women in the U.S. were reportedly to experience DV or its related-impact during their lifetime (Smith et al., 2018). And statistics suggest that 6.6 million women experience DV each year in the U.S. (Smith et al., 2018). And the reports from US Bureau of Justice Statistics show that women between the ages of 18 and 34 generally experience the highest rates of domestic violence. Over three women are averagely murdered a day by their spouses (BJS 2003, 2012).

More importantly, the severity of gender issues in DV can be exacerbated by the complexity in the nature of addressing the DV problem itself. On the one hand, police departments did not highly prioritize DV matters since they are historically regarded as private affairs confined to be addressed within the family and within the home (Chaney & Saltzstein, 1998). However, historically been viewed as the “solution to domestic violence” (Buzawa et al., 2012, p. 19), the criminal justice response has been improved over time. For instance, the U.S. federal government has invested significant resources into shifting criminal justice practices to include mandatory arrest, protection orders reform, no-drop prosecution, and the establishment of specialized DV courts (Goodman & Epstein, 2005). At the level of state, every state in the U.S., as well as the District of Columbia, has passed laws or policies, either mandatory or discretionary/preferred, that allow for warrantless arrests for domestic violence given probable cause. However, only around 21 states have mandatory arrest laws, where arrests must be made when probable cause is found (SAVE 2012; Green & Kelso, 2010; Zeoli, et al., 2011). Local governments also enact domestic violence laws or ordinances which generally complement state laws. While awareness of DV has increased in the United States, controversy remains around effective prevention and intervention strategies. As suggested by the low rates of reports and complaints in the empirical findings (see. e.g., Anderson et al. 2003; Tjaden & Thoennes 2000), the victims’ credibility is often challenged due to the insufficient evidence or the judgement that DV victims does not fit the stereotype of a “genuine victim”, which eventually lead to the failure to arrest (Spohn et al., 2014; Spohn & Spears, 1996).

On the other hand, DV incidents are underreported to law enforcement. In the U.S., for instance, several recent surveys suggest that less than half of the DV cases are reported

(Langton et al., 2012; Morgan & Truman, 2020). Victims may have myriad of reasons not to report such as a feeling of shame regarding the abuse, sentimental connection to the perpetrators, desires to stay in the family for their children, and reliance on the abusers' financial support (Erez & Belknap, 1998; Fischer & Rose, 1995; Logan & Valente, 2015). Fear is also another major barrier that keep the victims from reporting: they tend to be threatened by the perpetrators of killing them or their children if they leave, as supported by the empirical evidence that DV victims are most at risk of lethal violence in the days and months after separating from the abusers (i.e., "separation assault"; Campbell et al., 2003; Mahoney, 1991).

As such, it is necessary for the public organizations to mobilize community members and the entire civil society to collaboratively address the DV issues. The rationale behind is that through citizenry participation in law enforcement, victims can have more access to administrative and legal support to holding the offenders accountable and maximizing the public organizational effectiveness, efficiency, and equity of response to their sufferings (Klevene et al., 2008). Since women in general are far more likely than men to experience domestic abuse, female bureaucrats may correspondingly evince a more sympathetic attitude towards the life experiences of abuse victims than their male counterparts (Walby et al., 2010). In this way, the presence of females in law enforcement bodies may facilitate positive citizen-official interactions, lower the citizens' concerns of victim-blaming, and improve the citizens' belief that the officials will be more empathic to the DV victims and more likely to "go the extra mile" to hold the perpetrator accountable, which increases citizens' willingness to coproduce policy outcomes on addressing DV (Keiser et al. 2002). Indeed, the positive policy outcomes from female representation in the

public bureaucracies have been identified in the limited relevant research on DV. For instance, Chaney and Saltz (1998) found that higher ratio of policewomen is associated with a higher likelihood of DV arrests. Similarly, Andres and Miller (2013) identified the positive effects of female police leadership on DV interventions of frontline officials. More recently in a survey experiment that constructed a hypothetical setting of local DV unit, Riccucci, Van Ryzin, and Lavena (2014) found that the increase in female officials enhanced civic perception of the trustworthiness, fairness, and performance of the policy agency, which also implied the greater willingness of citizens to report DV incidents as a way of coproducing public safety outcome.

For the current inquires on the positive effects of female representation in the public bureaucracies on resolving DV and motivating citizenry coproduction, most of them tend to assume that the police departments be capable enough to deal with DV. However, it is likely that the responsible units lack capabilities due to the abovementioned complexity in addressing DV issues as exemplified by low priority and difficulty in identifying DV victims, which is also the focus of the presence study. Moreover, the COVID19 pandemic may not only exacerbate the labor shortage in the public organizations as previously discussed but also intensify DV problems. The empirical research complied to date strongly suggests that DV increased during the pandemic. The impacts of stay-at-home or social distancing orders because of the pandemic on increasing the DV calls for service were identified in many U.S. cities such as Dallas, Chicago, Indianapolis, and Los Angeles (see e.g., Piquero et al., 2020; Mohler et al., 2020; Hsu & Henke, 2021; Leslie & Wilson, 2020). Studies also found that the impacts were the largest during weekdays when families were likely to experience the greatest increase in time together relative to their pre-pandemic

schedules while they were traditionally work and school hours (e.g., McCray & Sanga, 2020). This also makes DV a suitable policy area to examine how labor shortage in the public agencies can reshape the effects of gender (female) representation of public bureaucracies on citizen willingness to coproduce public services.

Moreover, the impacts of labor shortage in the public agencies can be perceived differently by the potential coproducers of public service—citizens with different demographic characteristics. First, as majority of victims of DV are women, female may care more about whether their interaction with the public organizations (e.g., DV units in the local police departments) can help address DV problems. For instance, women were found to be more willing to report sexual assault in cities with more female police officers in several studies (e.g., Meier and Nicholson-Crotty 2006; Schuck, 2018). In this way, women may be more likely than men to alter their expectations given the lowered organizational capabilities resulted from the labor shortage in the public organizations, which eventually affect their willingness to coproduce. Besides, as people often identify themselves from the left to the right when talking about political matters, they may also have differentiated attitudes on the gendered policy issues based on their political views in terms of liberalism. People may view a bureaucratic action that helps a historically disadvantaged group as just or fair, given the prevailing patterns of social injustice and institutional bias in the broader society (Blessett et al. 2019). It is likely that such a social justice interpretation of a bureaucratic encounter will appear stronger for politically liberal (left-leaning) citizens than politically conservative (right-leaning) citizens, given that politically liberal people in the United States, for instance, typically appear more sympathetic to social justice arguments (Pew Research Center, 2017, 2019; Feeney &

Camarena, 2021; Minta & Brown, 2014; Reese, 2019). Since DV has been defined as a gendered policy issue through political process (e.g., Keiser et al. 2002, p. 556), people's political opinions on the disadvantages women have historically faced in society may affect their involvement in addressing DV problems in their communities. Thus, the liberal citizens may care more than their conservative counterparts about whether public bureaucracies can really help women in DV problems, and the labor shortage in the frontline public workforce may be more likely to make them worry about whether they can really coproduce public safety outcomes.

Additionally, the extent to which citizens are willing to coproduce public safety outcomes may also be affected by the nature of coproduction activities. Though lacking systematic theoretical explanation, the task complexity of the coproduction activities has been frequently found to affect citizen's willingness to coproduce in that citizens may perceive that the benefits of coproducing public service may not outweigh the costs of their participation (e.g., Van Eijk & Steen, 2014). Similarly, certain activities of coproduction may require professional skills, authority or capacity on the part of users, or infrastructure or mechanisms that user must rely on, which make citizens reluctant to take part in (Bovaird & Loeffler, 2012). In the policy area of DV, coproduction can be operationalized into the citizenry participation in the community service program developed by the local police departments (e.g., Bovaird, 2007; Barbera, Sicilia, and Steccolini 2016). Layne (1989), for instance, systematically examined the coproduction in policing and summarized the coproduction activities into three categories: individual coproduction such as crime prevention efforts; coproduction that requires collective works such as neighborhood watch and witness assistance; and the more organized and professional group coproduction such

as auxiliary police. Based on the argument about task complexity, citizens may be more willing to participate in individual coproduction activities than collective and group coproduction events in that they may have to invest more time and efforts but bear more risks stemmed from the complex nature of the latter for the expected public safety outcomes (Schneider, 1987; Brudney & England, 1983). As a result, the characteristics of coproduction activities may shape the effects of gender representation and labor shortage on citizenry willingness to collaborate with the law enforcement bodies in addressing DV.

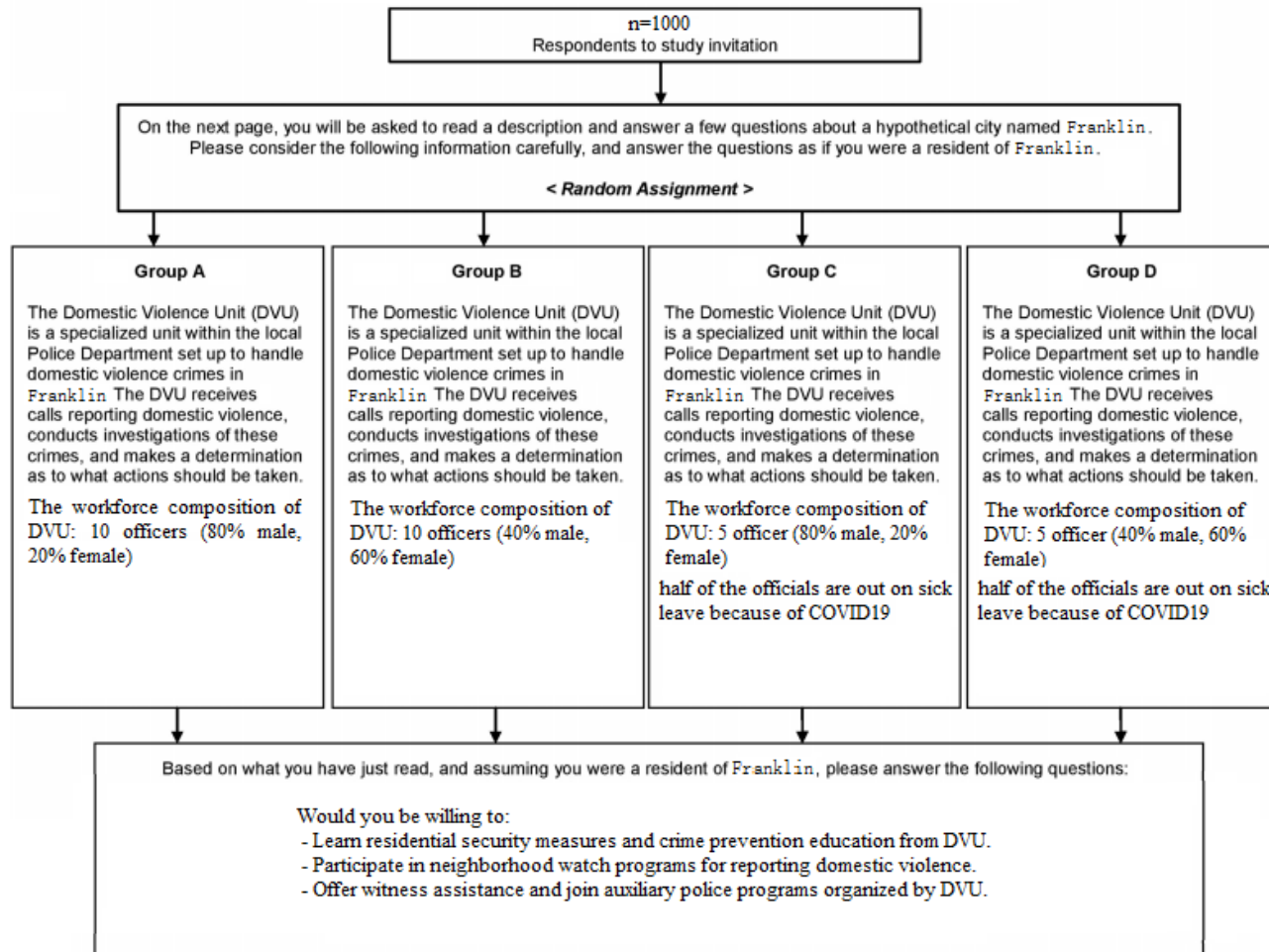
5.6 Data and Method

Constructed on theoretical and policy background discussed above, the present study purports to extend the inquiry of prior research on the symbolic effects of demographic representation in public bureaucracies to experimentally test whether the frequently hypothesized and tested positive effects of female bureaucratic representativeness on citizen willingness to coproduce still hold when the public organization is under labor shortage. Specifically, this study developed its experimental design based on a group of previous works such as Riccucci, Van Ryzin, and Lavena (2014) and Riccucci, Van Ryzin, and Jackson (2018) to explore whether the greater representation of female DV officials influence how citizens are willing to collaborate with the law enforcement bodies in addressing DV issues. More importantly, this study examines how such symbolic effects from the descriptive representation of female may be affected by the labor shortage in the law enforcement bodies.

Therefore, the experimental design of this study includes two manipulations by varying (1) the female representativeness of police officials in the DV unit of a hypothetical

police department (40% male and 60% female, versus 80% male and 20% female) and (2) the sick leave of officials because of COVID19 as it relates to labor shortage in the public workforce with a realistic reason (no sick leaves versus half of the officials are out on sick leave because of COVID19). The magnitudes of these numbers were based on a number of factors, including previous research which shows the national average of women police officers is just 13% and finds a low representation of women even in DVUs (see Andrews & Miller, 2013; Sun, 2007); the high representation value was set at 60% female based on our judgment that this would appear as a salient difference without being an extreme majority. This 2 x 2 design allows this study to examine the symbolic effects of gender representation along with how such symbolic effects may vary, or not, depending on the status of labor shortage in the agency as indicated by the reduction of officials on duty. Thus, this study uses a fully randomized, 2 × 2 between-subjects factorial design. Its high internal validity allows for strengthened causal inferences about the relationship between gender representation and citizen willingness to coproduce conditioned by labor shortage (Shadish et al., 2002) though the hypothetical nature of the scenario and the voluntary sample compromise the generalizability of the findings (Campbell and Stanley 1963). Additionally, the external validity of representative bureaucracy theory is well documented in nonexperimental, observational studies (e.g., Ding, et al., 2021; Gade and Wilkins 2013; Keiser et al. 2002; Meier and Nicholson-Crotty 2006).

Figure 5.2 Experimental design



As Figure 5.2 shows, the experiment first asked all participants a group of initial warm-up questions about their demographic information such as age, gender, race/ethnicity, residence, education levels, income, parental status, employment status, and political views. Next, participants were told to read a description about the domestic violence unit (DVU) at the local police department in a hypothetical town named Franklin and answer the questions imagining if they were the residents of Franklin. Participants were then randomly assigned to one of four treatment groups in which an experimentally varied description of the Franklin DVU was presented, including the gender distribution of its officers and whether the DVU encountered a labor shortage resulted from the COVID19 pandemic. As presented in Figure 5.2, the four vignettes were identical except for the experimental variation in female representation and status of labor shortage.

After carefully reading the description of the vignette, participants were asked three questions related to their willingness to assist DVU to address the DV problems in their community of Franklin. According to the summary documented by the Office of Justice Programs, U.S. Department of Justice (1989), the three questions focused on different dimensions of actions related to civic coproduction in the policy area of DV, including improving the awareness to prevent DV happenstance, volunteering to monitor the criminal behaviors, and actively stopped the crimes, which constitute the three dependent variables of this study:

- (1) How willing would you be to watch an online crime prevention course offered by the DVU? (1 = Very unwilling, 2 = Somewhat unwilling, 3 = Neither willing nor unwilling, 4 = Somewhat willing, 5 = Very willing)
- (2) How willing would you be to participate in a neighborhood watch program

organized by the DVU? (1 = Very unwilling, 2 = Somewhat unwilling, 3 = Neither willing nor unwilling, 4 = Somewhat willing, 5 = Very willing)

(3) How willing would you be to join an auxiliary police program organized by the DVU? (1 = Very unwilling, 2 = Somewhat unwilling, 3 = Neither willing nor unwilling, 4 = Somewhat willing, 5 = Very willing)

Participants in the study were recruited through the Qualtrics online research panel.³¹ Probability sampling ensures that every member of the population of interest has a known probability of being selected to participate. Probability samples are preferred since they reduce the risk of systematic bias related to representation (Baker et al. 2010). Qualtrics allows researchers to set demographic criteria of selection, and for this study, sampling quotas by age, gender, race-ethnicity, and region were established for the survey based on the most recent estimates of the US population from the US Census Bureau, QuickFacts.³² Such a probability sample were collected between March 11 and 25, 2022. A total of 1,005 good and complete responses were collected, after checking for bots, duplicates, speeders, and fraudulent responses. Comparing across treatment groups (as a balance test), Table 5.1 shows no statistically significant differences on any of these sociodemographic characteristics or attitudes. Given this balance and thus evidence of successful randomization, no control variables were included in the analyses of this study.

³¹ For more information on Qualtrics' network of sample providers, invitation procedures, and incentives, see the Qualtrics document "28 Questions to Help Buyers of Online Samples" via <https://esomar.org/uploads/attachments/ckqqecpst00gw9dtrl32xetli-questions-to-help-buyers-of-online-samples-2021.pdf>.

³² For more information about QuickFacts, see: <https://www.census.gov/quickfacts/US>.

Table 5.1 Characteristics and Attitudes by Treatment Group (Balance Test)

	Group A n=240	Group B n=253	Group C n=264	Group D n=248	Total n=1005	χ^2/df p Value
Gender						
Female	51.25%	52.17%	49.62%	49.60%	50.65%	0.4915
Male	48.75%	47.83%	50.38%	50.40%	49.35%	p=0.921
Race						
White	65.42%	64.03%	60.23%	61.29%	62.69%	12.9515
Black	9.17%	14.23%	14.39%	11.69%	12.44%	p=0.373
Hispanic	15.83%	14.23%	18.56%	20.56%	17.31%	
Asian	5.83%	5.93%	5.30%	5.24%	5.57%	
other	3.75%	1.58%	1.52%	1.21%	1.99%	
Age						
Under 35	30.00%	31.23%	27.65%	32.26%	30.25%	1.7242
35-64	43.33%	41.11%	44.32%	40.32%	42.29%	p=0.943
65 or older	26.67%	27.67%	28.03%	27.42%	27.46%	
Income						
Less than \$25,000	24.58%	22.53%	29.17%	26.72%	25.80%	4.8448
\$25,000 to \$74,999	51.25%	52.96%	45.45%	46.56%	49.00%	p=0.564
\$75,000 and more	24.17%	24.51%	25.38%	26.72%	25.20%	
Education						
High School Diploma (or less)	24.58%	28.06%	26.52%	27.02%	26.57%	9.1035
Some College, AA/AS	43.75%	31.62%	40.15%	40.32%	38.91%	p=0.168
BA/BS or Graduate Degree	31.67%	40.32%	33.33%	32.66%	34.53%	
Political views						
Very left	17.57%	13.44%	11.83%	16.19%	14.69%	8.5966
Somewhat left	13.81%	15.42%	12.98%	13.77%	13.99%	p=0.737
Median	43.51%	42.29%	45.04%	44.13%	43.76%	
Somewhat right	14.64%	15.81%	14.50%	15.79%	15.18%	
Very right	10.46%	13.04%	15.65%	10.12%	12.39%	

5.7 Result Analysis

The graphic description of the difference in means by treatment group, gender, and political views of the respondents is presented in Figure 5.3-5.5 to demonstrate the main treatment and interaction effects, along with the significant tests in the corresponding two- or three-way ANOVAs in Table 5.2. First, Figure 5.3 shows the average ratings of citizen willingness to participate in different activities to address DV issues as affected by female representation and labor shortage in the DVU. Regardless of demographic differences, all the respondents were more or less willing to watch the online prevention course or take part in the neighborhood watch program provided by the DVU to coproduce public safety outcomes while a considerable number of people showed unwillingness to serve as auxiliary police.³³ This makes sense in that people may prefer to participate in activities they are capable of and do not feel arduous (Bovaird 2007; Barbera, Sicilia, and Steccolini 2016; Van Eijk & Steen, 2014). Specifically, as expected in *H1* and *H2*, the respondents were more willing to watch the online prevention course offered by the DVU with the higher representation of women, while their willingness of participation in this program were lower when informed that the DVU faced labor shortage regardless of the level of female representation (statistically significant as showed in Table 5.2). However, the labor shortage in the DVU did not significantly neutralize the motivating effects of female representation on the respondents' willingness to watch prevention course since the average

³³ Though the complexity of different coproduction activities was not the major focus of this study, a one-way ANOVA is applied in order to examine the difference in means between three outcome variables. The statistics showed that there is a significant difference in the mean level of willingness to coproduce between three difference coproduction activities (i.e., watching online prevention course, participating in the neighborhood watch program, and serving as auxiliary police), which supports the finding from the graphic description. See Appendix C for details.

ratings of the willingness to participate in this program were still higher in the group with higher female representation despite the existence of labor shortage. For the action of participating in the neighborhood watch program, whereas respondents were more willing to serve when perceiving high representation of female in the DVU and every officer was on duty, their willingness to participate in such activity reduced sharply when the DVU encountered labor shortage. Surprisingly, as demonstrated in Figure 5.3, the negative moderating effect of labor shortage on the benefits from female representation (*H3*) was so strong that respondents were less willing to take part in the neighborhood watching program offer by the DVU with higher level of female representation but under the condition of labor shortage (statistically significant as showed in Table 5.2). Lastly, all the ratings for the respondent's willingness to become auxiliary police in four groups were low (either neutral or even somewhat unwilling to do so) and neither gender representation nor labor shortage had significant effects on the respondents' intention to coproduce in terms of this action.

Figure 5.3 Citizen willingness to coproduce (Means by Treatment Group)

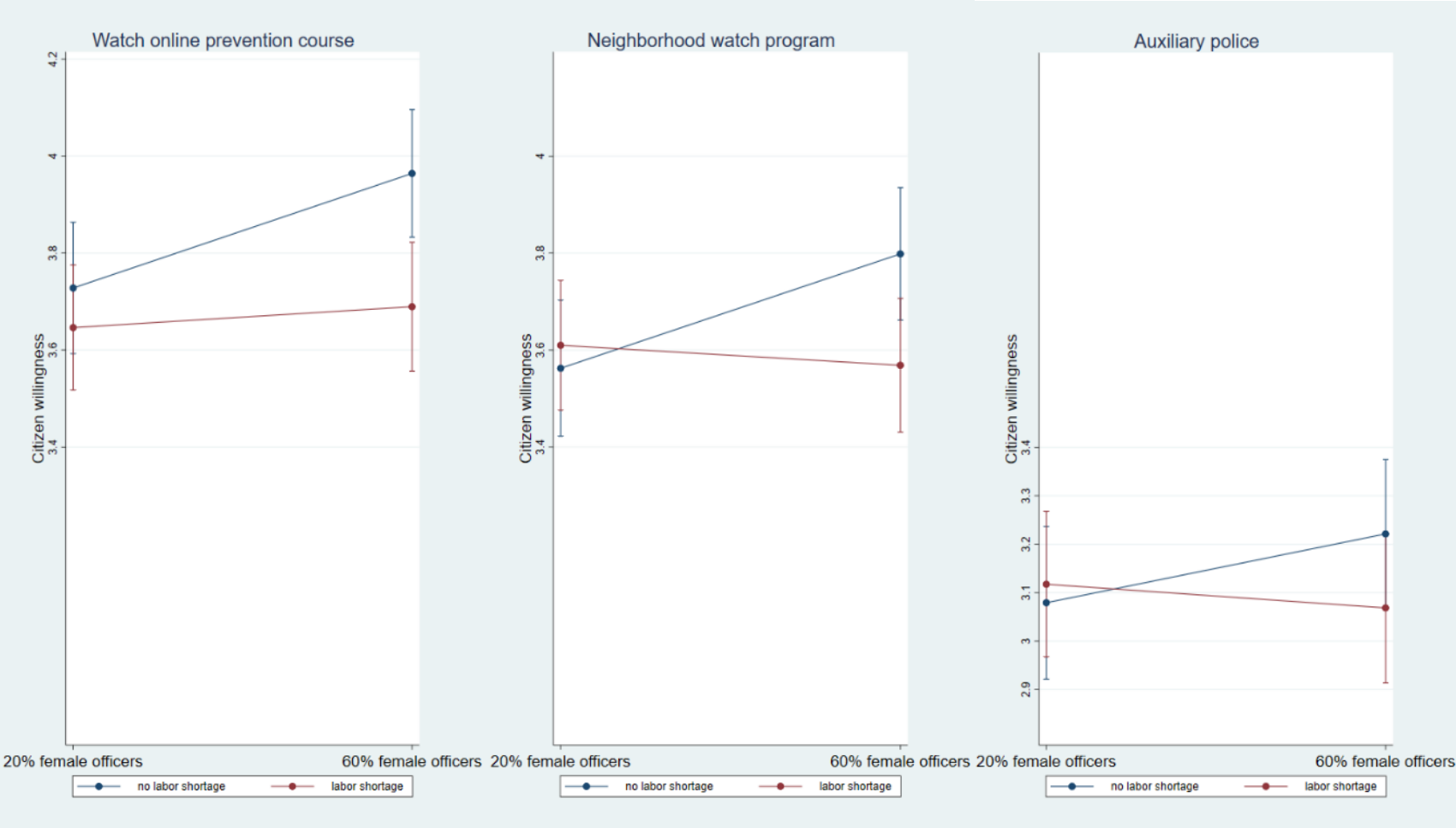


Figure 5.4(a)-5.4(c). show how participants from different gender groups responded to collaborate with the local DVU in addressing DV based on their perception of gender representation and labor shortage in the DVU. Similar to the results without differentiating gender groups, both male and female respondents showed higher levels of willingness to participate in the less complex activities such as watching the online prevention course and participating in the neighborhood watch program than the more risky and arduous events of auxiliary police. For the specific coproduction activities, as demonstrated in panel (a), the average ratings of the willingness to watch the online prevention course were higher for female respondents than for male respondents (statistically significant as showed in Table 5.2). Both male and female respondents were expectedly found to show higher level of willingness to watch the online prevention course provided by the DVU with higher female representation while becoming less willing to do so when the DVU is under labor shortage (statistically significant as showed in Table 5.2). However, labor shortage in the DVU was not observed to negatively moderate the positive effects of female representation on citizen willingness to participate in this activity. For the action of participating in the neighborhood watch program, as showed in panel (b), whereas both male and female respondents were more willing to serve when perceiving higher level of female representation in the DVU and every officer was on duty, they became far less willing to participate in such activity provided by the DVU with labor shortage. Interestingly, labor shortage in the DVU was found to largely reduce the positive effect from female representation so that both male and female respondents were less willing to take part in the neighborhood watching program when they perceived higher level of female representation (statistically significant as showed in Table 5.2). For both male and

female respondents, their willingness to serve as auxiliary police were low and no effects of gender representation and labor shortage were identified from the perspective of this activity, as showed in panel (c).

Figure 5.4 Citizen Willingness to Coproduce (Means by Treatment Group and Gender)

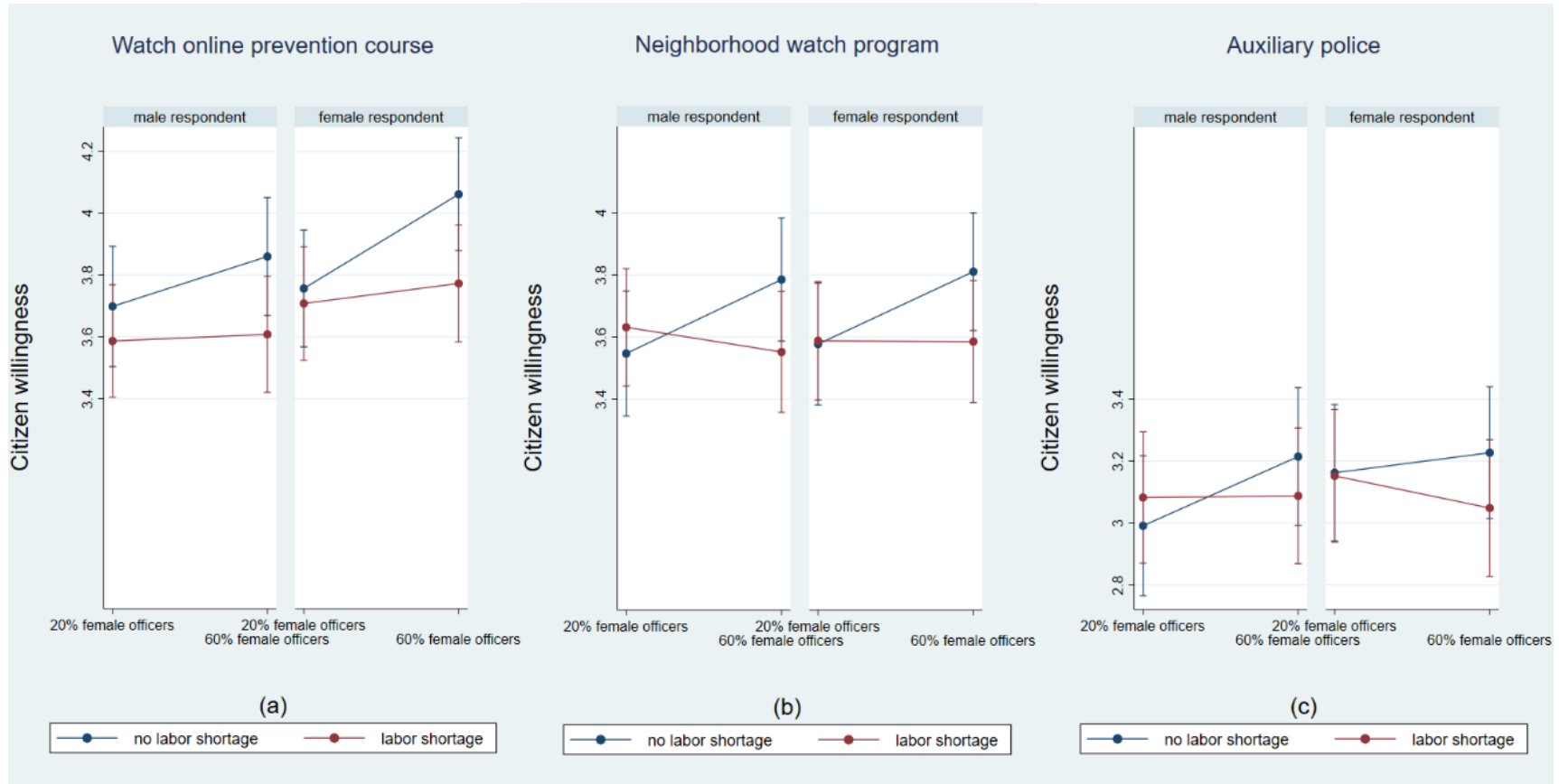


Figure 5.5(a)-5.5(c) present the results from different groups representing different political views from left to right for the impacts of gender representation and the moderating effects of labor shortage on citizen willingness to take different actions to address DV. Regardless of politically left or right, respondents showed higher levels of willingness to watch the online prevention course and take part in the neighborhood watch program than to take the more demanding job of auxiliary police. As suggested in panel (a), there was no substantive difference in the willingness to watch the online prevention course as affected by the perception of female representation between respondents with different ideological beliefs if labor shortage in the DVU was not considered. However, the respondents from all the ideological groups revealed less willing to watch the program when they realized the DVU is under labor shortage (statistically significant as showed in Table 5.2). More importantly, the existence of labor shortage was found to further reduce the respondent's willingness to watch the online prevention course in all the ideological groups even though they perceived a higher level of female representation in the DVU (statistically significant as showed in Table 5.2). And such a negative moderating effect of labor shortage was more severe in the respondents identifying themselves as more liberal (statistically significant as showed in Table 5.2). Like panel (a), the distribution in panel (b) showed that respondents from all the ideological groups were less willing to participate in the neighborhood watch program when the DVU was under labor shortage (statistically significant as showed in Table 5.2). Though not identified in the more conservative groups, respondents with more liberal political views were found to be less willing to join the neighborhood watch offered by the DVU with higher level of female representation when they perceived labor shortage in this unit (statistically significant as showed in Table 5.2).

Surprisingly, the more liberal respondents were found less willing to participate in the neighborhood watching program (statistically significant as showed in Table 2). Similar to the findings in panel (b), labor shortage was found to negatively moderate the positive effects of female representation on the respondents' willingness to serve as the auxiliary police only in the more liberal groups (statistically significant as showed in Table 5.2), while respondents in these groups were found less willing to participate in the neighborhood watching program than their more conservative counterparts (statistically significant as showed in Table 5.2).

Figure 5.5 Citizen Willingness to Coproduce (Means by Treatment Group and political views)

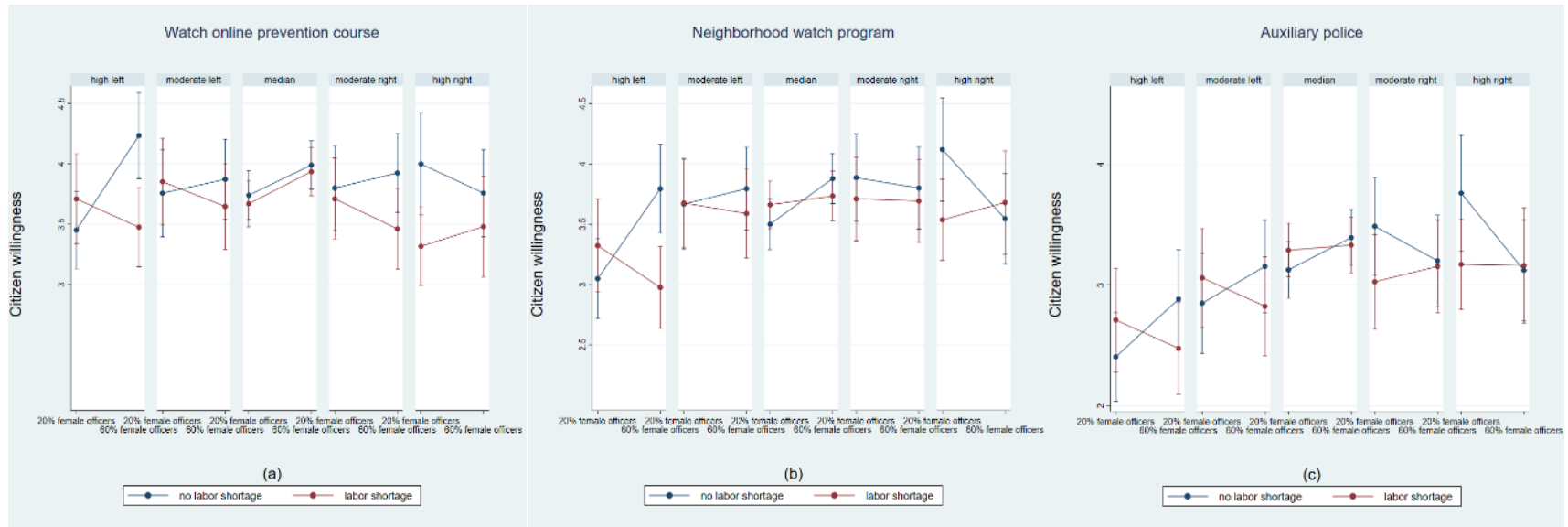


Table 5.2 Two- and Three-way ANOVAs

Source	Watching online prevention program					Neighborhood watch program					Auxiliary police					
	Partial SS	df	MS	F	Prob>F	Partial SS	df	MS	F	Prob>F	Partial SS	df	MS	F	Prob>F	
Coproduction activities																
General model	15.4	3	5.1	4.52	0.004	9.3	3	3.1	2.52	0.057	3.7	3	1.2	0.79	0.502	
Representation (60% female officers)	4.9	1	4.9	4.30	0.038	2.4	1	2.4	1.94	0.164	0.5	1	0.5	0.35	0.553	
Labor shortage (sick leave due to covid19)	8.0	1	8.0	6.99	0.008	2.1	1	2.1	1.70	0.192	0.8	1	0.8	0.53	0.466	
Representation x Labor shortage	2.3	1	2.3	2.05	0.152	4.8	1	4.8	3.93	0.048	2.3	1	2.3	1.48	0.224	
Residual	1137.2	999	1.1			1227.4	1001	1.2			1550.3	1001	1.5			
Total	1152.6	1002	1.2			1236.7	1004	1.2			1553.9	1004	1.5			
Observation(n)	1003					1005					1005					
Variance explained (R2)	0.134					0.075					0.023					
Gender groups	20.8	7	3.0	2.62	0.011	9.6	7	1.4	1.11	0.354	5.8	7	0.8	0.54	0.807	
Representation (60% female officers)	4.8	1	4.8	4.19	0.041	2.4	1	2.4	1.93	0.165	0.6	1	0.6	0.36	0.547	
Labor shortage (sick leave due to covid19)	7.7	1	7.7	6.74	0.010	2.1	1	2.1	1.68	0.195	0.8	1	0.8	0.51	0.477	
Gender of respondent (female)	4.6	1	4.6	4.08	0.044	0.0	1	0.0	0.03	0.872	0.7	1	0.7	0.46	0.496	
Representation x Labor shortage	2.3	1	2.3	1.98	0.160	4.8	1	4.8	3.90	0.049	2.3	1	2.3	1.51	0.220	
Representation x Gender	0.5	1	0.5	0.48	0.490	0.1	1	0.1	0.07	0.796	1.1	1	1.1	0.72	0.395	
Labor shortage x Gender	0.0	1	0.0	0.01	0.921	0.1	1	0.1	0.06	0.814	0.4	1	0.4	0.24	0.628	
Representation x Labor shortage x Gender	0.2	1	0.2	0.14	0.710	0.1	1	0.1	0.09	0.770	0.0	1	0.0	0.02	0.875	
Residual	1131.8	995	1.1			1227.1	997	1.2			1548.1	997	1.6			
Total	1152.6	1002	1.2			1236.7	1004	1.2			1553.9	1004	1.5			

Observation(n)	1003						1005					1,005				
Variance explained (R2)	0.181						0.077					0.038				
Political ideology	42.4	19	2.2	1.98	0.007	56.6	19	3.0	2.49	0.000	82.6	19	4.3	2.93	0.000	
Representation (60% female officers)	1.2	1	1.2	1.05	0.307	0.3	1	0.3	0.21	0.647	0.1	1	0.1	0.05	0.830	
Labor shortage (sick leave due to covid19)	10.2	1	10.2	9.11	0.003	4.2	1	4.2	3.53	0.060	2.8	1	2.8	1.86	0.173	
Political view of respondent (from left to right)	4.5	1	1.1	1.01	0.401	23.1	1	5.8	4.84	0.284	56.5	1	14.1	9.51	0.000	
Representation x Labor shortage	3.3	4	3.3	2.94	0.087	1.4	4	1.4	1.15	0.001	0.4	4	0.4	0.26	0.613	
Representation x Political view	5.9	4	1.5	1.30	0.267	6.1	4	1.5	1.28	0.274	6.2	4	1.5	1.04	0.386	
Labor shortage x Political view	5.1	4	1.3	1.14	0.336	2.9	4	0.7	0.60	0.661	4.1	4	1.0	0.69	0.598	
Representation x Labor shortage x Political view	10.4	4	2.6	2.32	0.056	14.4	4	3.6	3.02	0.017	11.8	4	3.0	1.99	0.094	
Residual	1102.0	980	1.1			1172.3	981	1.2			1457.8	981	1.5			
Total	1144.4	999	1.1			1228.8	1,000	1.2			1540.4	1,000	1.5			
Observation(n)	1000					1001					1,001					
Variance explained (R2)	0.370					0.460					0.536					

This study also presents a regression analysis to support the robustness of the experimental results. For the focal treatments, *female representation* was coded as 0.5 = “60% female/40% male” and -0.5 = “20% female/80% male” and *labor shortage* was coded as 0.5 = “sick leave of officials because of COVID19” and -0.5 = “no sick leaves” in order to make the significant tests equivalent to analysis of variance main and interaction effects. Besides, the demographic categories of gender and political ideology were also considered as respectively running the OLS regression in the separate samples for different gender groups and including a 5-scale ordinal variable (from 1 = “very left (liberal)” to 5 = “very right (conservative)”) in the general models. As showed in Table 5.3, the regression coefficients are also presented in Y-standardized form to make them interpretable an effect size, which implies the standard deviation change in the dependent variable Y resulted from the treatment group status. Additionally, this study also ran a corresponding set of ordered probit regressions (See Appendix 5.1) since the dependent variables were labeled 5-point scales.

There are three groups of models in Table 5.3, respectively testing the abovementioned treatment effects in general models, gender-specific models, and ideology-specific models. In the first panel for the models without specifying demographic groups, the effect of female representation (more female officers in the DVU) was significantly positive on the respondents’ willingness to watch online prevention course, with an effect size of about 0.13 standard deviation. However, the positive effects of female representation became insignificant when the outcome variables were the more complex neighborhood watch and auxiliary police. Besides, the effect of labor shortage (sick leave of officers due to COVID19) was significantly negative on the respondents’ willingness to

watch online prevention course, with an effect size of about 0.17 standard deviation. Similar to gender representation, the negative effects of labor shortage were no longer significant on the other two outcomes of citizen willingness to coproduce. Additionally, although not significant on the respondents' willingness to watch online prevention course and join the auxiliary police, the representation-by-labor-shortage interaction effect was significant on respondents' willingness to participate in neighborhood watch program and consistently negative. This implies that the positive effect of female representation in the DVU on respondent's willingness to coproduce public safety outcome through certain activities, mostly they feel comfortable and capable of doing so, can be somewhat compromised by the existence of labor shortage in the DVU. The results echoed the graphic demonstration in Figure 5.3.

The second panel describes the models specifying gender groups. For female respondents, the effect of female representation was expectedly positive and significant on their willingness to watch online prevention course, with an effect size of 0.18 standard deviation. Similar to the model for full sample, the significantly negative effect of labor shortage was found on female respondents' willingness to watch online prevention course, with average effect sizes of 0.17 standard deviation. However, the effects of gender representation and labor shortage were not significant on the female respondents' willingness to take part in the more complicated and riskier neighborhood watch and auxiliary police programs. And the representation-by-labor-shortage interaction effects were negative but not significant on three outcomes. While the effects of gender representation and labor shortage were found significant in the first model for the female sample, none of them were significant in the models for male sample. Overall, this suggests

that compared with male respondents, female respondents in terms of their willingness to coproduce public safety outcomes were more likely to be affected by the female representation and labor shortage in the DVU, as also in line with the findings in Figure 5.4.

In the third panel of models considering the respondents’ political views, the representation-by-labor-shortage interaction effects were significantly negative on all three outcome variables, with average effect sizes around 1 standard deviation. This suggests that the assumed positive effects of female representation on the respondents’ willingness to collaborate with the law enforcement bodies in addressing DV can be significantly compromised when the labor shortage in the DVU is perceived by the respondents. Surprisingly, the coefficients of political ideology were significantly positive in all three models, which implies that the more conservative respondents tend to have higher willingness to coproduce public safety outcomes. Correspondingly, the representation-by-labor-shortage-by-political-ideology interaction effects were significantly positive on all three outcomes. In other words, for more liberal respondents, the positive effects of female representation on citizens’ willingness to collaborate with the law enforcement bodies in addressing DV are more likely to be compromised by the perceived labor shortage in the DVU. These results also accord the findings from the visualization in Figure 5.4.

Table 5.3 Ordered Probit Regression Analysis

	Online prevention course		Neighborhood watch		Anxiliary police	
General model	(n=1003)					
RB	0.130	**	0.088		0.038	
LS	-0.166	***	-0.082		-0.046	
RBxLS	-0.180		-0.250	**	-0.154	
Constant	3.757	***	3.635	***	3.122	***
R ²	0.134		0.075		0.023	

Gender groups				
Female (n=508)				
RB	0.181	**	0.103	-0.016
LS	-0.166	*	-0.096	-0.078
RBxLS	-0.236		-0.211	-0.139
Constant	3.824	***	3.640	3.148
R ²	0.191		0.080	0.028
Male (n=495)				
RB	0.012		-0.030	-0.061
LS	-0.130		-0.286	-0.175
RBxLS	-0.093		0.074	0.040
Constant	3.688	***	3.629	3.094
R ²	0.092		0.074	0.037
Ideological groups				
RB	0.269		0.287	0.234
LS	0.019		-0.113	0.096
PI	-0.017		0.091	0.134
RBxLS	-1.007	***	-1.333	-1.075
RBxPI	-0.049		-0.067	-0.069
LSxPI	-0.061		0.009	-0.049
RBxLSxPI	0.280	***	0.380	0.324
Constant	3.821	***	3.348	2.645
R ²	0.222		0.317	0.371

Note: Table shows y-standardized coefficients as a measure of effect size. Representation coded: 0.5 = “60% female officers” and -0.5 = “20% female officers.” Performance coded: 0.5 = “sick leave due to COVID19” and -0.5 = “no sick leave.”
 Statistical significance: * $p < .10$; ** $p < .05$; *** $p < .01$ (two-tailed t -tests).

5.8 Discussion

The findings from the experiment may further the understanding of representative bureaucracy and coproduction from several perspectives. First, the frequently postulated symbolic effects of gender representation in public bureaucracies on citizen willingness to coproduce public services (H2) were supported in the policy context of domestic violence: the proportion of female in the DVU does seem to causally affect the respondent’s willingness to coproduce public safety outcomes in addressing DV. Being descriptively represented and belonging to the identity group as major victims of DV, female respondents showed higher level of willingness to watch online prevention course when there were higher proportion of female officers in the DVU. This reaffirmed the symbolic effects of

gender representation on citizen coproduction as proposed and tested in the previous works such as the ones from Riccucci, Van Ryzin, and Li (2016) and Riccucci, Van Ryzin, and Lavena (2014).

Similarly, the assumed negative impact of labor shortage in the public organizations on citizen willingness to coproduce public services (H1) was also detected: the sick leave of DVU officers due to COVID19 causally reduced the willingness of respondents in general and female respondents in specific to watch the online prevention course in order to address DV. This suggests that labor shortage frequently identified as an indicator of reduced public organizational capacity (e.g., Laufs & Waseem, 2020; Stogner et al., 2020; Jennings & Perez, 2020; Rothstein, 2015) may drive the citizens to question the legitimacy of public organizations (the law enforcement bodies here), which results in their lowered willingness to coproduce public services. More importantly, the representation-by-labor-shortage interaction effect (H3) was identified significantly negative in both full sample and female subsample when the outcome variables were the respondent's willingness to participate in the neighborhood watch program. This implies that the increased citizen willingness to coproduce public services resulted from the higher level of female representation in the public organizations can be offset by the perceived labor shortage in the public workforce, which is especially in the case among women as the historically underrepresented group in many policy areas (e.g., Keiser et al. 2002; Meier and Nigro 1976; Van Ryzin et al., 2017). Thus, the findings about the gender representation, labor shortage, and their interaction suggest that the policy benefits, at least to motivating citizen coproduction, from the descriptive representation of socially underrepresented groups such as women in the public organizations are conditional on the extent to which citizens

perceive the public organizations as capable and legitimate to develop mutual trust in the delivery of public service.

Notably, the magnitude and level of significance of the effects of gender representation and labor shortage varied across models with different coproduction activities and different ideological groups. First, the positive effects of female representation and negative effects of labor shortage were no longer significant when the outcome variables were the willingness to participate in neighborhood watch and auxiliary police programs. And the descriptive statistics also showed that the average ratings of the respondent's willingness to take part in the two activities were significantly lowered than the ones for watching the online prevention course. This may be explained by that citizens may reduce their willingness to coproduce through certain activities that they feel less capable of doing so, which can eventually annul the effects of female representation and labor shortage (Bovaird 2007; Barbera et al., 2016). However, the representation-by-labor-shortage interaction effect was significantly negative on the respondents' willingness to participate in neighborhood watch program rather than the more comfortable activity of watching the online prevention course, which may imply that the positive effect of female representation on citizen willingness to coproduce is more likely to be neutralized by labor shortage in the public workforce when the coproduction activities are more complex (Van Eijk & Steen, 2014). Interestingly, the representation-by-labor-shortage interaction effect was significantly negative when political ideology was considered, and the more conservative respondents tend to be less affected by such negative interaction effects. This suggests that the more liberal citizens care more about the labor shortage in public organizations as they may think it threatens the social justice in public service delivery (Pew

Research Center, 2017, 2019; Feeney & Camarena, 2021; Minta & Brown, 2014; Reese, 2019). As a result, the labor shortage in turn is more likely to neutralize the positive effects of female representation on the more liberal citizens' willingness to coproduce public services.

5.9 Conclusion

This study conducts a survey experiment to test the hypothesized symbolic benefits from gender (female) representation to motivating citizen coproduction, along with the threat from labor shortage, in the policy area of domestic violence. First, respondents were found to be more willing to watch online prevention course provided by the local DVU with higher proportion of female officers while they were less willing to do so when there were officers having sick leaves due to COVID19. Besides, the positive effects of female representation in the DVU on the respondent's willingness to participate in the neighborhood watch program can be neutralized when there were officers in the DVU having sick leaves due to COVID19. The positive effects of gender representation and negative effects of labor shortage were also examined in the sample of female respondents. Additionally, the negative moderating effects of labor shortage were susceptible to the political views of the respondents; the more liberal respondents were more likely to be affected than their more conservative counterparts.

The findings of this study help generate new insights that can direct the future research and practice on how to make good use of the descriptive representation of the socially underrepresented groups in the public bureaucracies. First, the widely argued effects of descriptive representation of gender in the public bureaucracies on motivating

citizenry coproduction were empirically supported in the policy area of domestic violence, which expand the findings from previous works such as Riccucci, Van Ryzin, and Lavena (2014) and Riccucci, Van Ryzin, and Jackson (2018). Bureaucratic representation can not only increase the perceived legitimacy of the law enforcement bodies among the disadvantaged social groups but also serve as a tool to mobilize citizen coproduction to substantively address public safety issues. Moreover, the significant effects of labor shortage in the public organizations on citizen willingness to coproduce public safety outcomes imply the remarkably negative impacts of the pandemic-driven labor shortage in public agencies on developing mutual trust and government legitimacy between public organizations and citizens (Laufs & Waseem, 2020; Stogner et al., 2020; Jennings & Perez, 2020; Rothstein, 2015). More importantly, the significant representation-by-labor-shortage interaction effects suggest that the symbolic effects of gender representation in public bureaucracies in terms of increasing citizen trust and motivating citizen coproduction can be conditional on other factors in the organizational/institutional environment. This also adds to the argumentation about the limits of symbolic representation in the work of Headley, Wright, and Meier (2021). In other words, the effectiveness of increasing the demographic representativeness of the bureaucracy for improving the relationship between the public and the bureaucracy may not only need some level of positive bureaucratic treatment but also the perceived high level of bureaucratic capability. Additionally, that the effects of gender representation and labor shortage in the models were not significant for more complex and substantive coproduction behaviors and that female and more liberal citizens were more susceptible to the effects of gender representation and labor shortage suggest that the symbolic benefits of demographic representation in the public

bureaucracies can also be contingent to the characteristics of citizen clients though they were not the focus of this study.

Admittedly, this study has several limitations which may also inspire future exploration. First, this experimental design is US-based and focuses on the policy area of domestic violence. Thus, future research can test the hypothesized effects of gender representation and labor shortage in different national contexts and policy areas even those are not gendered. Moreover, since this study focused on the neutralizing effect of labor shortage in public organizations on the role of bureaucratic representation in motivating citizen coproduction, the labor shortage was only assumed to originate from the COVID19 in order to connect the inquiry with current events. As a result, whether the negative effects of labor shortage are associated with its cause(s) is still unknown, which requires future exploration. Additionally, in the empirical inquiry of this study, the information about the gender composition and the labor shortage status of the hypothetical DVU were explicitly described. However, citizen in reality may not perceive the gender composition their local police departments or whether these police departments are short of hands, and their judgement of their local police departments may be affected by their prior experience or other bases though they were asked a group of questions about their demographics. Thus, future research can apply observational, quasi-experimental, or field experimental designs to empirically test the conditionality of symbolic benefits from demographic representation in the public bureaucracies.

5.10 References

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Chapter 6

Conclusion

6.1 Main Arguments and Findings

Despite numerous scholars identifying the potential advantages of public workforce diversity and representation, there is limited knowledge on (1) the establishment of bureaucratic representation and diversity in public service organizations, and (2) the means to attain such benefits in varying contexts. This dissertation maintains that the development of workforce diversity and representation in public organizations is largely contingent and reliant on the particular institutional environment, as demonstrated by examining the connection between workforce diversity and representation and public service outcomes from inception to effects.

The four independent while interrelated essays explain how diversity and representation in public workforce can contribute to public services from different perspectives. First, I claim that bureaucratic representation in general can benefit public organizational performance and the positive performance impacts can be amplified under certain conditions. On the one hand, the average effects sizes comparison across 80 quantitative studies suggests a generally positive effect of bureaucratic representation on public organizational performance regardless of the empirical contexts, which is in line with the finding from literature review in a broader sense (Bishu & Kennedy, 2019). On the other hand, the positive effects of representative bureaucracy on public organizational performance can be moderated by a group of contextual factors. Specifically, the

performance benefits from bureaucratic representation can be amplified by demographically salient identity groups being represented. In other words, the positive impacts of bureaucratic representation on public service outcomes are contingent to demographic groups. Moreover, frontline public organizations are more likely to be positively affected by bureaucratic representation than their non-frontline counterparts. This suggests the role of discretion in activating the performance benefits from bureaucratic representation. Lastly, the positive effects of bureaucratic representation are greater when performance is measured at organizational level than individual level.

Second, I argue that workforce diversity can benefit public service delivery only if it can be well managed. By introducing CEM to the context of public sector, diversity can have mixed impacts on public organizational performance because diversity can generate inclusivity and intergroup conflicts at the same time in organizations. The average effect size comparison across the 37 quantitative study affirmed the dual existence of positive and negative impacts of diversity on public organizational performance. More importantly, I identified the contextual determinants of such mixed diversity impacts on public organizational performance. Accordingly, the meta-regression results implied that the negative diversity impacts from social categorization are determined by the identity salience of demographic subgroups in terms of dominance in size while the positive diversity impacts from information elaboration can be activated by specific managerial strategies such as diversity-friendly leadership and diversity-oriented training programs.

Third, I argue that developing representation and diversity in public workforce can be ideological and subject to specific institutional environment. Executive leader's partisanship as operationalized into governor's partisanship in the context of American

States was found to affect the level of bureaucratic representation for certain socially underrepresented groups, which was measured by the proportion of newly hired public employees and median salary of current public workers. The significance effects on the new public employment suggest that controlling the standardized merit-based system, executive leader's partisanship can affect government's attractiveness to the job applicants from socially underrepresented groups, which may contribute to the descriptive representation of these groups in public workforce. Similarly, the significant effects on salary level imply that executive leader's partisanship can also affect how people from socially underrepresented groups are treated as employees in public agencies, which may affect their motivations to actively service their citizenry counterparts. The difference in level of significance between the two measures suggests that executive leader's partisanship has various impacts on different dimensions of bureaucratic representation. Compared with bureaucratic motivations to actively serve their citizenry counterparts, the symbolic benefits from descriptive representation is more susceptible to executive leader's partisanship. Additionally, the impacts of executive leader's partisanship can be moderated by specific isomorphic pressures from the political competition over legislative and executive branches.

Finally, my fourth argument states that the symbolic benefits from descriptive representation in the public bureaucracy such as the increased trust and coproduction in public services can be conditional to the structural or institutional changes in the public workforce. In the context of massive labor shortage in public agencies driven by COVID19 pandemic, I found that both symbolic benefits from female representation in public bureaucracy and labor shortage in public workforce worked to affect the citizen's

willingness to assist the local police to deal with domestic violence issues. On the one hand, women are more willing to help the local domestic violence unit with high proportion of female officers. This affirmed the widely assumed symbolic benefits from bureaucratic representation to motivate citizen coproduction in public service. On the other hand, labor shortage in public workforce reduced citizens willingness to coproduce. More importantly, it can also mitigate the positive impact of female representation on motivating citizens to assist the police to deal with domestic violence. Additionally, both positive impacts of female representation and mitigating effects of labor shortage are conditional to the complexity of coproduction behaviors, demographic groups, and political ideology.

6.2 Contributions to theory and method

Overall, the approach of my dissertation can advance the intellectual inquiry on social equity in public management from the perspective of theory, method, and policy. From the perspective of theory, this dissertation complements the theoretical development of social equity in public management in various aspects. First, it helps construct the micro theories of representative bureaucracy and diversity management. On the one hand, the postulated distinct effects of bureaucratic representation of specific demographic characteristics were empirically supported, which links the demographic identity salience with representative bureaucracy. And bureaucratic representation, as expected, was more effective at enhancing public organizational performance at the frontline rather than non-frontline levels; this finding supports the level of discretion as one major factor regarding the effects of bureaucratic representation. Moreover, representative bureaucracy contributed to overall public organizational performance more than when performance was

measured at individual levels, which suggests the possible variation in the role that bureaucratic representation plays in affecting public organizational performance at different organizational levels. Surprisingly, the effects of symbolic bureaucratic representation were similar with those of active representation on improving public organizational performance, which points to the equal status of symbolic and active representation as aspects of representative bureaucracy.

On the other hand, demographic diversity is just the starting point of understanding diversity effects. Identifying the specific contexts that shape the different diversity impacts is very important apart from simply pointing out or describing the original demographics that comprise diversity. CEM purports to rationalize the different effects from demographic diversity, both positive and negative, by discussing the possible mechanisms that result in the variation in diversity effects. Based on CEM, social categorization is the mechanism that generates negative diversity impacts while information elaboration generates positive diversity impacts. The goal here is to provide another useful framework for studying impact of diversity on public organizational performance. This is particularly important as the preponderance of research on diversity in public sector workforces has illustrated that the effects of diversity are ambiguous.

Second, it helps identify the institutional conditions for developing diversity and representation in public workforce, which is fundamental to the representative bureaucracy and well managed diverse workforce that are beneficial to public service delivery. Despite merit-based hiring practices, political factors can still influence the decision of socially underrepresented individuals to work in government, enabling executive leaders to politicize public employment (e.g., Hays & Kearney, 1990; Mosher, 1982; Ingraham, 1995;

Ban & Ingraham, 1990; Moynihan & Ingraham, 2010; Skowronek et al., 2021). Besides, promoting diversity and representation in the public workforce can have ideological implications. First, changes in new employment indicate that governments led by more liberal parties may have an advantage in attracting socially underrepresented individuals to join the public workforce. The partisanship of executive leaders can influence the attraction and retention of employees from these groups, with more liberal governments potentially better equipped to promote equity and inclusivity within their agencies. This is due in part to their ability to effectively communicate a commitment to diversity and social justice, which may be appealing to socially underrepresented employees (Jurgenson, 1978; Rynes et al., 1983). Increased recruitment of individuals from these groups can also contribute to greater descriptive representation within the public bureaucracy, enhancing the perceived legitimacy of government among socially underserved populations (Ricucci & Van Ryzin, 2017; Nicholson-Crotty et al., 2016; Theobald & Haider-Markel, 2009).

Similarly, changes in compensation status indicate that, under certain institutional pressures, governments led by more liberal parties may provide better working environments for public employees from socially underrepresented groups. Although individual agency heads typically make these decisions, they may be influenced by the commitment to diversity and social justice of more liberal executive leaders. By promoting greater equity and inclusivity within their agencies through better working conditions for public employees from socially underrepresented groups, more liberal governments can foster a sense of commitment and dedication among these employees towards better serving their citizenry (Andrews et al., 2014; Meier & Bohte, 2001). Thus, executive leader's partisanship can work to promote diversity and representation in public sector as

the basis for achieving DEI in the public service.

Finally, this dissertation helps better understand the conditions for the mere presence of people from socially underrepresented groups in public workforce as beneficial to public service outcomes. Bureaucratic representation can not only increase the perceived legitimacy of the law enforcement bodies among the disadvantaged social groups but also serve as a tool to mobilize citizen coproduction to substantively address public safety issues. More importantly, the significant representation-by-labor-shortage interaction effects suggest that the symbolic effects of gender representation in public bureaucracies in terms of increasing citizen trust and motivating citizen coproduction can be conditional on other factors in the organizational/institutional environment. This also adds to the argumentation about the limits of symbolic representation in the work of Headley, Wright, and Meier (2021). In other words, the effectiveness of increasing the demographic representativeness of the bureaucracy for improving the relationship between the public and the bureaucracy may not only need some level of positive bureaucratic treatment but also the perceived high level of bureaucratic capability. Additionally, that the effects of gender representation and labor shortage in the models were not significant for more complex and substantive coproduction behaviors and that female and more liberal citizens were more susceptible to the effects of gender representation and labor shortage suggest that the symbolic benefits of demographic representation in the public bureaucracies can also be contingent to the characteristics of citizen clients.

My dissertation also advances the rigorous use of diverse methodologies in research on social equity and public management through a deductive-inductive approach informed by theory and framework. Meta-analysis allows this dissertation to not only summarize the

findings in existing literature concerning the relationship between bureaucracy representation, diversity, and public organizational performance, but also identify the factors shaping the representation/diversity-performance relationship. Compared with traditional literature reviews, meta-analysis is a stronger tool for combining and generalizing research findings (Ringquist, 2013). Unlike narrative reviews that typically summarize patterns across different research results through counting statistically significant results, meta-analysis systematically synthesizes all the individual results among existing studies. In this way, I can use meta-analysis to statistically aggregate the findings from a plethora of studies in representative bureaucracy, diversity management, and public organizational performance to form a coherent result that is generalizable across those studies. Moreover, meta-analysis can detect and analyze the variability in results across existing studies, which is extremely useful to empirically evaluating the effects of possible contextual moderators embedded in research designs or settings underlying the relationships examined, which is vital to constructing micro theories for representative bureaucracy and diversity management.

Besides, regression discontinuity design allows this dissertation to identify the causal impact of executive leader's partisanship on the development of diversity and representation in public workforce as fundamental to representative bureaucracy. Democrats win the gubernatorial elections only if their candidates' vote shares margin of victory cross the zero threshold. In other words, the governor's partisanship can only be determined by the candidate's vote share margin of victory. Accordingly, I can construct a sharp RDD that isolate as good as random variations in governor's partisanship. Moreover, I also applied the data-driven selection of optimal bandwidth to minimize the MSE and

triangular kernel to remove misspecification bias and account for extra variability during the correction processes. Thus, such an RDD can better identify the institutional conditions that directly lead to the diverse and representative workforce for public services.

Lastly, the survey experiment was constructed by incorporating wisdoms from different previous designs such as such as Riccucci, Van Ryzin, and Lavena (2014) and Riccucci, Van Ryzin, and Jackson (2018) with a larger dataset and new treatments. The widely argued effects of descriptive representation of gender in the public bureaucracies on motivating citizenry coproduction were empirically supported in the policy area of domestic violence. More importantly, the significant representation-by-labor-shortage interaction effects suggest that the symbolic effects of gender representation in public bureaucracies in terms of increasing citizen trust and motivating citizen coproduction can be conditional on other factors in the organizational/institutional environment. This expands the external validity of the empirical designs from previous works and improve the designs to better identify conditions that enables the symbolic benefits from bureaucratic representation in different empirical contexts.

6.3 Limitations

Admittedly, this dissertation has several limitations which may also inspire future exploration. First, the studies included in the meta-analysis are dominated by studies from the U.S. and countries with similar diverse demographic compositions (e.g., western European countries), since there are too few representative bureaucracy or diversity management studies in the contexts of nation-states. As a result, a small number of nation-state studies prevent us from comparing multicultural-state findings with nation-state

findings. Indeed, it has been argued that institutional differentiation does affect the status of diversity and representation in the public workforce and can further impact performance (Andrews et al., 2016). Thus, future research can examine whether national context would change the bureaucratic representation/diversity-organizational performance relationship.

Besides, given the limited data access, I can only test the hypothesized impact of executive leader's partisanship on bureaucratic representation in a relatively short period, covering 5 to 6 rounds of gubernatorial elections. It is better to test whether such impact still existed in the longer period if more longitudinal data can be collected. For the same reason, I lacked information about detailed agency demographics at both the state and local levels and personnel policies of governors and their appointed agency heads. This prevented an examination of the specific decisions made by executive leaders that ideologically differentiate the demographic compositions of public workforces at different government levels, which requires further exploration.

Finally, in the experimental design, the information about the gender composition and the labor shortage status of the hypothetical DVU were explicitly described. However, citizen in reality may not perceive the gender composition their local police departments or whether these police departments are short of hands, and their judgement of their local police departments may be affected by their prior experience or other bases though they were asked a group of questions about their demographics. Thus, inquiries using mixed methods such as the combination of survey, experiment, interview, observation, and case study are also desired to complement scholarship in the contextuality of the relationship between public service outcomes and bureaucratic representation and diversity.

6.4 References

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Appendices

Appendix A Robustness Check for Diversity Measures

Table A3.1 Robustness Check with Different Diversity Measures

Moderator	CRVE	GEE
Dominance in Physical Presence	-.3369*** (.1205)	-.2646** (.1132)
Stereotype Consensus	-.1501 (.1177)	-.1995 (.1301)
Leadership	.7952*** (.1661)	.8325*** (.1780)
Culture/Climate	.0189 (.1830)	-.0035 (.1572)
Training	.5623* (.3012)	.5357** (.2309)
Organizational Justice Policy	-.7383** (.2799)	-.7045*** (.2324)
Indivi/organizational measure	.0379 (.0821)	.0280 (.0907)
Blau index	--*	-.1394 (.2252)
Correlation	-.2145 (.1783)	-.0493 (.1535)
Entropy	-.0054 (.1246)	.0380 (.0953)
Publication bias	.0262 (.1188)	-.0085 (.1208)
Constant	.0001 (.1598)	--*
No. of effect sizes	253	253
No. of studies	37	37
<i>F</i>	15.63***	
<i>R</i> ²	0.3661	
Wald χ^2		128.16***

*Coefficients were omitted because of collinearity.

Note. Robust standard errors in parentheses. CRVE=Clustered robust variance estimation; GEE=Generalized estimating equations. *significant at .1, **significant at .05, ***significant at .01.

Table A3.2 Robustness Check with Different Performance Measures

Moderator	CRVE	GEE
Dominance in Physical Presence	-.2925*** (.1003)	-.2560** (.1095)
Stereotype Consensus	-.1389 (.0965)	-.2133* (.1273)
Leadership	.8489*** (.1857)	.8590*** (.1847)
Culture/Climate	-.0193 (.1368)	-.0193 (.1391)
Training	.5101** (.2219)	.4596** (.1859)
Organizational Justice Policy	-.6754*** (.2442)	-.6337*** (.2275)
Indivi/organizational measure	.1040 (.1153)	.1153 (.1266)
Efficiency	.0160 (.1183)	.0661 (.1165)
Effectiveness	.0203 (.1057)	-.0094 (.0935)
Representation	-.1376 (.1357)	-.1892 (.1550)
Equity	.2044* (.1162)	.2420* (.1254)
Publication bias	.0151 (.1179)	.0162 (.1427)

Constant	-.1559 (.2351)	-.1422 (.2367)
No. of effect sizes	253	253
No. of studies	37	37
F	24.41***	
R^2	0.3526	
Wald χ^2		177.47***

Note. Robust standard errors in parentheses. CRVE=Clustered robust variance estimation; GEE=Generalized estimating equations. *significant at .1, **significant at .05, ***significant at .01.

Appendix B Validation of RDD

Power Analysis and Bandwidth Selection (mserd, cerrd, mesesum)

Some may wonder whether the empirical results of a relatively small sample size are due to a lack of statistical power. Then, a formal power analysis may be desired. To provide just such a check, the regression discontinuity power analysis suggested by Cattaneo, Titiunik, and Vazquez-Bare (2017) is implemented, using the same RDD techniques—models with the optimal bandwidth, local parametric regression, bias-correction, and robust standard errors—suggested by Calonico, Cattaneo, and Titiunik (2014).

Table A4.1 provides the power estimates for $T=1$ (that is, for effects equal to half the standard deviation of the outcome for the untreated) and a statistical significance level of 0.05. As can be seen in Table A4.1, across all of the models and outcomes, the corresponding power levels are all above the common power threshold of 0.80.

The bandwidth choice method investigates whether the point estimates are sensitive to the additions or removal of units at the end points of the neighborhood. This sensitivity approach identifies whether the RD estimation is determined by the bandwidth selection methods across the considerations of estimate interpretation and optimal inference. In other words, this test examines whether the empirical results from this RDD is mechanically

determined by the statistical properties of the estimation and inference methods. Here, the local polynomial techniques with three bandwidth choices are applied from Equation (1) to Equation (5): (1) the mean-squared-error(MSE)-optimal choice h_{mse} (using *mserd* option in STATA) (ii) the coverage-error(CER)-optimal choice h_{cer} (using *cerrd* option in STATA); and (iii) the MSE-optimal bandwidth selector for the sum of regression estimates $h_{msecsum}$ (using *msecsum* option in STATA). As showed in the Table A4.2, the results based on the CER-optimal choice h_{cer} are consistent with the results based on the MSE-optimal choice in that they both lead to a similar point estimate, but the CER-optimal choice results in a longer confidence interval according to which the effect cannot be distinguished from zero at conventional levels. The MSE-optimal bandwidth selector for the sum of regression estimates $h_{msecsum}$ also leads to results that are broadly consistent with the empirical findings obtained with the MSE-optimal choice. Thus, the estimates from the current RDD are consistent across different bandwidth choices.

Table A4.1 Power Analysis

Power Analysis									Power Analysis								
DV: Proportion of Newly Hired Employees									DV: Median Salary of Public Employees								
Models	2 year		4 year		2 year (only female)		4 year (only female)		Models	2 year		4 year		2 year (only female)		4 year (only female)	
	p=1	p=2	p=1	p=2	p=1	p=2	p=1	p=2		p=1	p=2	p=1	p=2	p=1	p=2	p=1	p=2
Minority Group	Black				Black Female				Minority Group	Black				Black Female			
tau	32.00	35.00	25.00	28.00	20.00	24.00	14.00	16.00	tau	21000.00	30000.00	28000.00	35000.00	21000.00	30000.00	28000.00	34000.00
Robust bias-corrected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	Robust bias-corrected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Minority Group	Hispanic				Hispanic Female				Minority Group	Hispanic				Hispanic Female			
tau	24.00	25.00	20.00	25.00	10.00	10.00	9.00	13.00	tau	21000.00	30000.00	28000.00	34000.00	22000.00	31000.00	24000.00	28000.00
Robust bias-corrected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	Robust bias-corrected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Minority Group	Asian				Asian Female				Minority Group	Asian				Asian Female			
tau	3.00	4.00	4.00	4.00	2.00	2.00	2.00	3.00	tau	25000.00	26000.00	23000.00	28000.00	27000.00	35000.00	24000.00	30000.00
Robust bias-corrected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	Robust bias-corrected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Minority Group	Native				Native Female				Minority Group	Native				Native Female			
tau	4.00	4.00	3.00	1.00	2.00	3.00	2.00	2.00	tau	25000.00	36000.00	29000.00	36000.00	25000.00	33000.00	28000.00	35000.00
Robust bias-corrected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	Robust bias-corrected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Minority Group	Female								Minority Group	Female							
tau	14.00	14.00	13.00	14.00					tau	21000.00	35000.00	26000.00	35000.00				
Robust bias-corrected	1.00	1.00	1.00	1.00					Robust bias-corrected	1.00	1.00	1.00	1.00				

Note: The values of Tau are calculated as half the standard deviation of the outcome for the untreated, as recommended by Cattaneo, Titiunik, and Vazquez-Bare (2017).

Table A4.2a Estimation with Different Bandwidth Choices (DV: Proportion of Newly Hired Employees)

		Bandwidth Choice											
		DV: Proportion of Newly Hired Employees											
		2 years			4 years			2 years (only female)			4 years (only female)		
Models		mserd	cerrd	msum	mserd	cerrd	msum	mserd	cerrd	msum	mserd	cerrd	msum
Minority Group	Black	Black Female											
RD Estimate		-18.51**	-18.004*	-18.536**	-7.452	-7.8156	-7.537	-11.067*	-10.995*	-10.411*	-3.2489	-3.5278	-3.2393
SE		9.0586	9.1656	8.9491	6.5235	6.8899	6.9412	6.0512	6.1691	5.3168	3.7745	3.9717	3.7774
N left		69	69	69	66	66	66	69	69	69	66	66	66
N right		62	62	62	65	65	65	62	62	62	65	65	65
Minority Group	Hispanic	Hispanic Female											
RD Estimate		5.265	6.0121*	5.2688	5.9852	6.5478*	5.77	2.7086	3.1158*	2.8773*	2.5844	2.9588	2.8998*
SE		3.5476	3.6021	3.3911	3.7509	3.9299	3.5543	1.7122	1.7732	1.6552	1.8026	1.9194	1.7067
N left		69	69	69	66	66	66	69	69	69	66	66	66
N right		62	62	62	65	65	65	62	62	62	65	65	65
Minority Group	Asian	Asian Female											
RD Estimate		0.64108	0.6669	0.71998	-0.76054	-0.78545	-0.34367	0.26425	0.19882	0.33998	-0.60124	-0.61875	-0.52991
SE		0.64706	0.69657	0.64481	0.97942	1.083	0.80717	0.41357	0.43577	0.37878	0.54993	0.60716	0.49591
N left		69	69	69	66	66	66	69	69	69	66	66	66
N right		62	62	62	65	65	65	62	62	62	65	65	65
Minority Group	Native	Native Female											
RD Estimate		1.6406*	1.8077*	1.7375**	1.1463*	1.3718**	1.1491*	0.94705*	1.0128*	1.0314**	0.57289*	0.62368**	0.52523*
SE		0.98444	1.0194	0.84546	0.62528	0.68129	0.63054	0.53636	0.55378	0.4577	0.29768	0.30886	0.28881
N left		69	69	69	66	66	66	69	69	69	66	66	66
N right		62	62	62	65	65	65	62	62	62	65	65	65
Minority Group	Female												
RD Estimate		0.33779	-0.10939	0.52288	1.0897	0.98719	0.60331						
SE		4.0038	4.1505	3.9604	3.926	4.1598	3.511						
N left		69	69	69	66	66	66						
N right		62	62	62	65	65	65						

Note: All models use local polynomial (nonparametric) functions with triangular kernel and the MSE-optimal bandwidth for the running variable as recommended by Cattaneo et al. (2019) and Calonico et al. (2014). Robust standard errors clustered at state level in parentheses. For levels of significance, *significant at .1, **significant at .05, ***significant at .01.

Table A4.2b Estimation with Different Bandwidth Choices (DV: Median Salary of Minority Public Employees)

		Bandwidth Choice											
		DV: Median Salary of Public Employees											
		2 years			4 years			2 years (only female)			4 years (only female)		
Models		mserd	cerrd	msum	mserd	cerrd	msum	mserd	cerrd	msum	mserd	cerrd	msum
Minority Group	Black	Black Female											
RD Estimate		-1628.2	-1535	-1238.9	-3834.5	-4271.4	-3714.6	-642.85	-248.57	-638.31	-4648.2	-4290.1	-4015.6
SE		6604.1	7067.9	6118	7301.7	7619.7	7355.8	6602.2	6994.3	6585.8	8283.3	8368.8	7613
N left		66	66	66	53	53	53	66	66	66	53	53	53
N right		58	58	58	52	52	52	58	58	58	52	52	52
Minority Group	Hispanic	Hispanic Female											
RD Estimate		-4825.3	-4552.6	-4598	-1367.4	-1171.8	-1905.6	-3665.5	-3544	-3648.2	-2475.6	-2583.3	-2746.9
SE		6594.4	7032.8	5955.6	7338.1	7727.7	7330.6	6757.3	7129.8	6733.1	7609.7	7996.3	6787.7
N left		66	66	66	53	53	53	66	66	66	53	53	53
N right		58	58	58	52	52	52	58	58	58	52	52	52
Minority Group	Asian	Asian Female											
RD Estimate		-1113.1	-446.17	-1184.1	-3174.6	-3837.8	-3344.2	1271.8	2222.1	1811.4	-3316.5	-4243.4	-3540.2
SE		7396.6	7867.3	7507.5	7530.9	8024.2	7747.2	7645.9	8112.6	7877.7	8526	9126.6	8746.6
N left		66	66	66	53	53	53	66	66	66	53	53	53
N right		58	58	58	52	52	52	58	58	58	52	52	52
Minority Group	Native	Native Female											
RD Estimate		-3737.9	-3798.9	-3740.9	-2903	-3581.5	-2920.9	-1392.3	-1117.2	-1242.6	-1980.5	-2279.7	-2353.5
SE		6926.9	7282.3	7000.2	8222	8597.1	8214.4	6726.6	7098.9	7702.6	8826.2	9325.8	8847.5
N left		66	66	66	53	53	53	66	66	66	53	53	53
N right		58	58	58	51	51	51	58	58	58	51	51	51
Minority Group	Female												
RD Estimate		3239.1	3254.9	2927.4	-1914.7	-1374.1	-1383.5						
SE		5537.2	5772.1	6082.4	8679.3	8713.5	7702.4						
N left		43	43	43	32	32	32						
N right		48	48	48	40	40	40						

Note: All models use local polynomial (nonparametric) functions with triangular kernel and the MSE-optimal bandwidth for the running variable as recommended by Cattaneo et al. (2019) and Calonico et al. (2014). Robust standard errors clustered at state level in parentheses. For levels of significance, *significant at .1, **significant at .05, ***significant at .01.

Balance test of covariates

The RD design is valid only if the null hypothesis of no treatment effect on the predetermined covariates cannot be rejected, since the discontinuity of the potential outcome functions is unlikely to hold if the covariates that are known to correlate strongly with the outcome of interest are discontinuous at the cutoff. Thus, the gubernatorial electoral RD design set out from Equation (1) to Equation (5) is only effective when relevant actors do not have precise control over gubernatorial election results, which indicates the necessity of the test for covariates balance.

When using the continuity-based approach to RD analysis, this falsification test employs the same local polynomial techniques discussed in the section of model specification to test whether state population of specific minority groups, state GDP, governor gender, party control of state legislature, and the level of unionization within the state are continuous at the cutoff, in other words, to test whether the treatment has an effect on these predetermined covariates.

Out of the 28 tests run for lagged measures of 14 covariates for 2-year and 4-year impacts of gubernatorial partisanship, only 4 models were significant at the 10% level: a bit more than what is expected by chance—suggesting balance at the discontinuities used in the paper. Moreover, the observed imbalances from the significant covariates were quite small. Given the natural trade-off between size and power of the falsification tests resulted from the alternative bandwidth choices, another group of tests using the CER-optimal bandwidth are implemented in addition to the tests using MSE-optimal bandwidth. In this application, switching to CER-optimal bandwidth does not further show any sign of imbalance. The test results are provided in Table A4.3.

Overall, this suggests that the exact discontinuities in the Democratic vote share margin of victory as used in the present study sort individual gubernatorial elections in an as-good-as random manner, suggesting the validity of the RDD for making causal inferences.

Table A4.3 Covariate Balance Test with MSE-optimal and CER-optimal Bandwidth

Covariate balance								
Covariate	2 year (MSE)				2 year (CER)			
	RD Estimate	SE	N left	N right	RD Estimate	SE	N left	N right
FemaleTotalpop	540000	1600000	65	62	580000	1600000	65	62
BlackpopTotal	-5341.8	430000	83	80	33886	440000	83	80
HisppopTotal	420000	310000	64	72	360000	400000	64	72
AsianpopTotal	30495	190000	83	80	170000	140000	83	80
IndianpopTotal	87300**	41216	83	80	71565*	43136	83	80
FemaleBlackpopTotal	-7337.8	230000	83	80	16356	230000	83	80
FemaleHispanicpopTotal	140000	250000	83	80	340000*	180000	83	80
FemaleAsianpopTotal	31497	72562	83	80	68304	76335	83	80
FemaleIndianpopTotal	51629**	23148	83	80	49874**	23498	83	80
RealGDP	16016	130000	83	80	30426	140000	83	80
Governorsex	-0.0591	0.12238	83	80	-0.11557	0.12048	83	80
Demlegis	-0.4756*	0.27977	97	95	-0.43374	0.28379	97	95
Salarystate	3491.7	5297.4	43	48	3237.9	5661	43	48
PCTMem	-3.7517*	2.124	96	89	-3.9786*	2.3166	96	89
4 year (MSE)								
Covariate	RD Estimate	SE	N left	N right	RD Estimate	SE	N left	N right
FemaleTotalpop	-660000	1100000	72	66	-820000	1100000	72	66
BlackpopTotal	-280000	330000	77	76	-250000	350000	77	76
HisppopTotal	160000	420000	75	71	150000	510000	75	71
AsianpopTotal	-120000	170000	77	76	-79459	190000	77	76
IndianpopTotal	62214	47154	77	76	69601	49835	77	76
FemaleBlackpopTotal	-150000	180000	77	76	-130000	190000	77	76
FemaleHispanicpopTotal	44153	210000	77	76	56308	250000	77	76
FemaleAsianpopTotal	-61026	88102	77	76	-40245	100000	77	76
FemaleIndianpopTotal	33475	25812	77	76	31659	27310	77	76
RealGDP	-69088	140000	77	76	-92236	140000	77	76
Governorsex	-0.04782	0.14314	77	76	-0.13615	0.14283	77	76
Demlegis	-0.29843	0.32373	83	80	-0.3171	0.34285	83	80
Salarystate	-990.89	7301.9	32	40	-571.06	7724.6	32	40
PCTMem	-3.0319	2.2595	83	80	-3.3324	2.4391	83	80

Note: All models use local polynomial (nonparametric) functions with triangular kernel and the MSE-optimal bandwidth for the running variable as recommended by Cattaneo et al. (2019) and Calonico et al. (2014). Robust standard errors clustered at state level in parentheses. For levels of significance, *significant at .1, **significant at .05, ***significant at .01.

Precise sorting test

Precise sorting occurs when observations—in this case the gubernatorial elections in American states—are able to rampantly manipulate their score on the running variable (Cattaneo et al., 2019). If this were to occur, the discontinuity would lose its as-good-as random assignment. In the U.S. presidential elections, since all but two states (Maine and Nebraska) cast votes in an all-or-nothing manner, voters in a handful of swing states are plainly of much greater electoral importance to the candidates than voters in safe states which have been firmly control by one party (e.g., Kriner & Reeves, 2015; Banzhaff 1968; Bartels, 1985; Brams & Davis, 1974; Nagler & Leighley, 1992; Shaw, 2006). Applied to the gubernatorial elections, the lack of electoral competitiveness fixed the safe states in one partisan camp or the other, which makes their governors always possess same partisanship. Such a party sorting process in the safe state suggests the possible manipulation of their scores on the running variable in this RDD design, i.e., Democratic vote share margin of victory in the gubernatorial election always remained positive in the Democratic safe states while negative in the Republican counterparts, which violates the as-good-as random assignment assumed in RDD. Thus, states without party transitions in their gubernatorial elections in years with available data of newly hired public employees and median salary of current public workers were excluded from the final sample.

To further test the possibility of precise sorting in the sample eliminating the sorting effects from the safe states, it is still necessary to look at clusters of observations around the cutoff as recommended in Cattaneo, Idrobo and Titiunik (2019). The logic is, if observations are able to manipulate what side of the cutoff they fall on, we should be able to see this by a discontinuity in the number of observations at the cutoff. In other words, to

diagnose precise sorting, it is necessary to conduct a test of the null hypothesis that there is continuity of the density functions for control and treatment units at the cutoff. This study implements the density test using the `rddensity` command in `rddensity` package of STATA as recommended (Cattaneo et al., 2017). The value of the statistic is 1.29 and the associated p-value is 0.20. This means that under the continuity-based approach, the density test fails to reject the null hypothesis of no difference in the density of treated and control observations at the cutoff. Figure A4.1 provides a graphical representation of the continuity in density test approach, exhibiting both a histogram of the data and the actual density estimate with shaded 95% confidence intervals. As shown in Figure A4.1, the density estimates for treated and control groups at the cutoff (the two intercepts in the figure) are very near each other, and the confidence intervals (shaded areas) overlap. This plot is consistent with the results from the formal test.

To address any potential for precise sorting, this study also runs the so-called “donut RD” check as recommended (Cattaneo et al., 2019). If precise sorting of score values has occurred, it is natural to assume that the units closest to the cutoff are those most likely to have engaged in sorting. The idea behind this test is to exclude such units and then repeat the estimation and inference analysis using the remaining sample. As shown in Table A4.1, after excluding different amounts of units near the cutoff, the conclusion of the analysis remains largely unchanged since both the original and the new estimated effects are significant at 10% level. Taken with the results from the density test, this check affirms that the discontinuity in Democratic vote share margin of victory sorts states in an as-good-as random manner. This allows for the specified cutoff 0 to be used to estimate the causal effect of gubernatorial partisanship on bureaucratic representation.

Figure A4.1 Density Test for Sharp RD Design

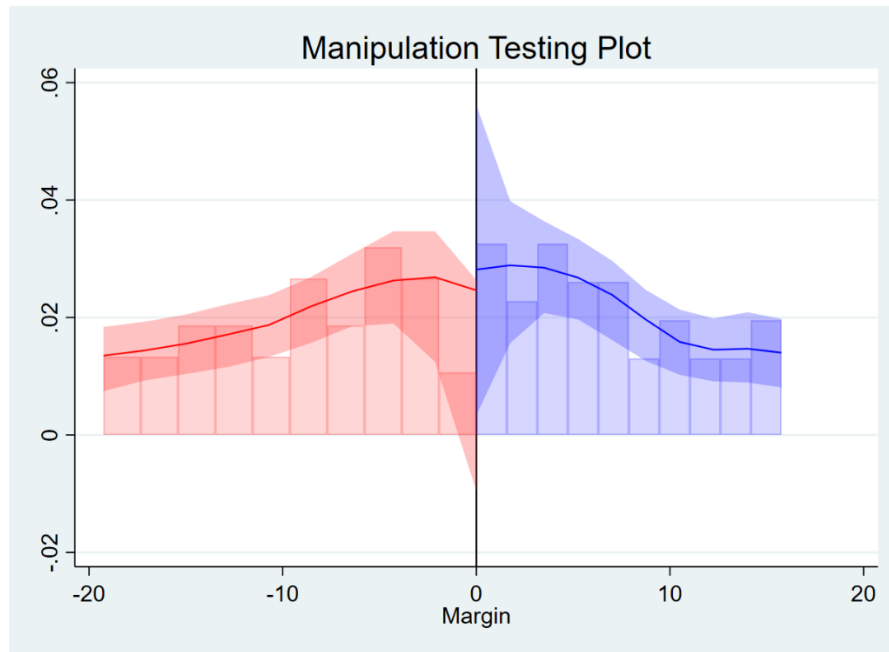


Table A4.4a Donut RD Check for Proportion and Salary (DV: Proportion of Newly Hired Employees)

Donut check																
DV: Proportion of Newly Hired Employees																
Models	2 years				4 years				2 years (only female)				4 years (only female)			
	0	0.4	0.6	0.8	0	0.2	0.6	0.8	0	0.2	0.6	0.8	0	0.2	0.6	0.8
Minority Group	Black								Black Female							
RD Estimate	-18.51**	-21.232*	-22.523**	-23.187**	-7.452	-3.3185	-3.2567	-2.9222	-11.067*	-13.153*	-13.789*	-14.346*	-3.2489	-0.21164	0.01706	0.69088
SE	9.0586	11.141	11.158	11.255	6.5235	6.7288	7.1036	7.4897	6.0512	7.3699	7.3731	7.4577	3.7745	3.8936	4.2113	4.4725
N left	69	68	68	68	66	65	65	65	69	68	68	68	66	65	65	65
N right	62	61	59	58	65	65	63	62	62	61	59	58	65	65	63	62
Minority Group	Hispanic								Hispanic Female							
RD Estimate	5.265	4.8836	5.3874	6.4645	5.9852	5.9749	5.6822	6.5501	2.7086	2.7327	2.9304	3.4093	2.5844	2.3695	2.3985	2.92
SE	3.5476	4.0641	4.6453	5.3092	3.7509	4.5548	4.9074	5.5252	1.7122	2.026	2.3704	2.7203	1.8026	2.074	2.3587	2.6813
N left	69	68	68	68	66	65	65	65	69	68	68	68	66	65	65	65
N right	62	61	59	58	65	65	63	62	62	61	59	58	65	65	63	62
Minority Group	Asian								Asian Female							
RD Estimate	0.64108	1.0143	0.30819	0.32751	-0.76054	-1.5249	-2.4025*	-2.3626	0.26425	0.57621	0.18057	0.10033	-0.60124	-0.76656	-1.3184*	-1.3679
SE	0.64706	0.812	0.75381	0.7892	0.97942	1.2443	1.3265	1.4879	0.41357	0.43685	0.39903	0.42126	0.54993	0.71619	0.79139	0.87458
N left	69	68	68	68	66	65	65	65	69	68	68	68	66	65	65	65
N right	62	61	59	58	65	65	63	62	62	61	59	58	65	65	63	62
Minority Group	Native								Native Female							
RD Estimate	1.6406*	1.843	2.5403*	1.3185	1.1463*	1.1985*	1.6273*	0.99985	0.94705*	1.0571*	1.4489*	0.7301	0.57289*	0.63803*	0.76129*	0.56078
SE	0.98444	1.1748	1.4713	0.93142	0.62528	0.69718	0.88921	0.71264	0.53636	0.64031	0.79559	0.51346	0.29768	0.35887	0.40081	0.39584
N left	69	68	68	68	66	65	65	65	69	68	68	68	66	65	65	65
N right	62	61	59	58	65	65	63	62	62	61	59	58	65	65	63	62
Minority Group	Female															
RD Estimate	0.33779	1.7121	2.6888	1.9876	1.0897	4.3526	4.9657	6.8389*								
SE	4.0038	3.5814	3.5843	3.5606	3.926	4.625	4.1565	3.8093								
N left	69	68	68	68	66	65	65	65								
N right	62	61	59	58	65	65	63	62								

Note: All models use local polynomial (nonparametric) functions with triangular kernel and the MSE-optimal bandwidth for the running variable as recommended by Cattaneo et al. (2019) and Calonico et al. (2014). Robust standard errors clustered at state level in parentheses. For levels of significance, *significant at .1, **significant at .05, ***significant at .01.

Table A4.4b Donut RD Check for Proportion and Salary (DV: Median Salary of Minority Public Employees)

Donut check																
DV: Median Salary of Public Employees																
Models	2 years				4 years				2 years (only female)				4 years (only female)			
	0	0.4	0.6	0.8	0	0.2	0.6	0.8	0	0.2	0.6	0.8	0	0.2	0.6	0.8
Minority Group	Black								Black Female							
RD Estimate	-1628.2	-6430.3	-10361	-7778.7	-3834.5	-3834.5	-9308.3	-9308.3	-642.85	-4738	-8885	-6330	-4648.2	-4648.2	-10580	-10580
SE	6604.1	6326.3	6449.5	6789.5	7301.7	7301.7	7723.7	7723.7	6602.2	6276.5	6142.8	6519.5	8283.3	8283.3	7882	7882
N left	66	65	65	65	53	53	53	53	66	65	65	65	53	53	53	53
N right	58	57	55	54	52	52	50	50	58	57	55	54	52	52	50	50
Minority Group	Hispanic								Hispanic Female							
RD Estimate	-4825.3	-9363	-12640**	-10118	-1367.4	-1367.4	-8007.3	-8007.3	-3665.5	-8720.9	-13011**	-10590*	-2475.6	-2475.6	-9365.9	-9365.9
SE	6594.4	6313.5	6254.4	6600.5	7338.1	7338.1	7554.3	7554.3	6757.3	6353.9	5684.9	-10590	7609.7	7609.7	7085.6	7085.6
N left	66	65	65	65	53	53	53	53	66	65	65	65	53	53	53	53
N right	58	57	55	54	52	52	50	50	58	57	55	54	52	52	50	50
Minority Group	Asian								Asian Female							
RD Estimate	-1113.1	-7336.7	-11361*	-9334.9	-3174.6	-3174.6	-7345.7	-7345.7	1271.8	-4706.7	-7646.9	-5543.3	-3316.5	-3316.5	-7394	-7394
SE	7396.6	7504.6	6848.1	7540.8	7530.9	7530.9	6759.9	6759.9	7645.9	7618.7	6576.1	7115.7	8526	8526	7819.3	7819.3
N left	66	65	65	65	53	53	53	53	66	65	65	65	53	53	53	53
N right	58	57	55	54	52	52	50	50	58	57	55	54	52	52	50	50
Minority Group	Native								Native Female							
RD Estimate	-3737.9	-8041	-11659*	-8963.1	-2903	-2903	-11056	-11056	-1392.3	-6898.3	-9702.5	-6879.7	-1980.5	-1980.5	-10785	-10785
SE	6926.9	7273.6	6975.9	7206.9	8222	8222	7897.1	7897.1	6726.6	6962.6	6307	6510.6	8828.2	8828.2	7831.9	7831.9
N left	66	65	65	65	53	53	53	53	66	65	65	65	53	53	53	53
N right	58	57	55	54	51	51	49	49	58	57	55	54	51	51	50	50
Minority Group	Female															
RD Estimate	3239.1	-1768.6	-6191.2	-4443.7	-1914.7	-1914.7	-12386	-12386								
SE	5537.2	5609.6	5032.7	5041.3	8679.3	8679.3	9442.6	9442.6								
N left	43	42	42	42	32	32	32	32								
N right	48	48	46	45	40	40	38	38								

Note: All models use local polynomial (nonparametric) functions with triangular kernel and the MSE-optimal bandwidth for the running variable as recommended by Cattaneo et al. (2019) and Calonico et al. (2014). Robust standard errors clustered at state level in parentheses. For levels of significance, *significant at .1, **significant at .05, ***significant at .01.

Placebo of cutoffs

Although the identifying assumption of regression discontinuity—the continuity (or lack of abrupt changes) of the regression functions for treatment and control units at the cutoff in the absence of the treatment—is essentially untestable at the cutoff, an alternative can be to investigate whether the estimable regression functions for control and treatment units are continuous at points other than the cutoff, which is the placebo cutoff. This test replaces the true cutoff value by another value at which the treatment status does not really change, and performs estimation and inference using this artificial cutoff point. To avoid “contamination” due to real treatment effects, for artificial cutoffs above the real cutoff only treated observations are used, and for artificial cutoffs below the real cutoff only control observations are used. Thus, this restriction ensures the all observations with the same treatment status and the treatment effect at each placebo cutoff to be zero.

As reported in Table A4.5, the robust p-values for the artificial cutoffs are all greater than 0.1, consistent with the conclusion that the outcome of interest does not jump at the artificial cutoffs, and in contrast to the results at the true cutoff. The true cutoff of 0 is included in order to have a benchmark to compare—the particular results regarding the true cutoff will be discussed in the next section. All other cutoffs are artificial or placebo, in the sense that treatment did not actually change at those points. As showed in Table A4.5, in all but one of the artificial cutoff points, the RD point estimator is smaller in absolute value than the true RD estimate, and that all p-values are above 0.1. This suggests that for both 2-year and 4-year effects, both the proportions of people from individual minority groups in total population of newly hired public employees and median salaries of public workers from minority groups within the state do not jump discontinuously at the placebo cutoffs.

Table A4.5a Models with Placebo Cutoffs (DV: Proportion of Newly Hired Employees)

Placebo Cutoff									
DV: Median Salary of Public Employees									
Minority Group					Minority Group (only female)				
Placebo Cutoff	RD Estimate	SE	N left	N right	Placebo Cutoff	RD Estimate	SE	N left	N right
Black					Black Female				
-9	2.8841	12.615	38	31	-9	1.8355	7.5679	38	31
-8	13.025	19.602	41	28	-8	9.2183	12.271	41	28
-6	7.2373	8.9941	47	22	-6	5.6714	4.8544	47	22
0	-18.51**	9.0586	69	62	0	-11.067*	6.0512	69	62
6	11.797	8.7419	24	38	6	5.5966	5.0883	24	38
8	-15.756	9.7039	32	30	8	-10.056	5.7612	32	30
9	5.1343	21.213	33	29	9	1.6549	12.43	33	29
Hispanic					Hispanic Female				
-9	5.2668	6.2493	38	31	-9	2.5729	3.1199	38	31
-8	0.29752	2.2194	41	28	-8	0.56359	1.369	41	28
-6	-6.4175	8.3492	47	22	-6	-2.7534	3.7386	47	22
0	5.265	3.5476	69	62	0	2.7086	1.7122	69	62
6	2.8281	4.1809	24	38	6	1.4351	2.2734	24	38
8	-4.2456	2.9943	32	30	8	-1.7818	1.5307	32	30
9	2.4831	3.6386	33	29	9	1.748	1.8288	33	29
Asian					Asian Female				
-9	1.2463	0.9406	38	31	-9	0.18451	0.53368	38	31
-8	1.7554*	0.93393	41	28	-8	1.4599**	0.69	41	28
-6	0.31054	0.6013	47	22	-6	0.26259	0.39319	47	22
0	0.64108	0.64706	69	62	0	0.26425	0.41357	69	62
6	-1.6838	2.6729	24	38	6	-1.2087	1.5046	24	38
8	-0.34831	0.90989	32	30	8	0.03166	0.44716	32	30
9	0.96076	1.4122	33	29	9	0.63895	0.6673	33	29
Native					Native Female				
-9	0.41738	0.49781	38	31	-9	0.21199	0.28665	38	31
-8	-1.0751	0.79393	41	28	-8	-0.36287	0.33148	41	28
-6	-1.629	1.3256	47	22	-6	-0.84721	0.80519	47	22
0	1.6406*	0.98444	69	62	0	0.94705*	0.53636	69	62
6	-0.63482	0.43612	24	38	6	-0.23347	0.20657	24	38
8	-0.56061	0.63935	32	30	8	0.06851	0.11637	32	30
9	-1.1971	0.99214	33	29	9	-0.24827	0.2312	33	29
Female									
-9	-2.3099	5.0841	38	31					
-8	4.5565	3.7257	41	28					
-6	8.5679	2.3014	47	22					
0	0.33779	4.0038	69	62					
6	-3.5184	6.1997	24	38					
8	5.9776**	2.9924	32	30					
9	-11.152	6.6952	33	29					

Note: All models use local polynomial (nonparametric) functions with triangular kernel and the MSE-optimal bandwidth for the running variable as recommended by Cattaneo et al. (2019) and Calonico et al. (2014). Robust standard errors clustered at state level in parentheses. For levels of significance, *significant at .1, **significant at .05, *** significant at .01.

Table A4.5b Models with Placebo Cutoffs (DV: Median Salary of Minority Public Employees)

Placebo Cutoff									
DV: Median Salary of Public Employees									
Minority Group					Minority Group (only female)				
Placebo Cutoff	RD Estimate	SE	N left	N right	Placebo Cutoff	RD Estimate	SE	N left	N right
Black					Black Female				
-8	5096.2	7697.7	40	26	-8	6456.1	7019.1	40	26
-7	10284	21427	42	24	-7	11868	19456	42	24
-5	11070	7423	49	17	-5	10694	6520.7	49	17
0	-1628.2	6604.1	66	58	0	-642.85	6602.2	66	58
5	8535.8	11086	20	38	5	11601	9987.3	20	38
7	13127	9435.6	25	33	7	10125	8797.3	25	33
8	5913.1	5525.1	30	28	8	5503.6	4472.4	30	28
Hispanic					Hispanic Female				
-8	6334.5	6549.9	40	26	-8	7251.3	5766.9	40	26
-7	11027	17384	42	24	-7	5662.6	15673	42	24
-5	8571.5	7705.9	49	17	-5	11412	5909.1	49	17
0	-4825.3	6594.4	66	58	0	-3665.5	6757.3	66	58
5	7248.1	10022	20	38	5	7335.1	9511.4	20	38
7	5000.2	10459	25	33	7	2122	9185	25	33
8	2714.2	6229.1	30	28	8	2424.9	4899	30	28
Asian					Asian Female				
-8	8543.9	6993.7	40	26	-8	8625.3	8484.1	40	26
-7	14120	16794	42	24	-7	9773	16618	42	24
-5	10163	7096.2	49	17	-5	15001	6466.4	49	17
0	-1113.1	7396.6	66	58	0	1271.8	7645.9	66	58
5	4077.3	10851	20	38	5	9102.6	11798	20	38
7	3420.1	10037	25	33	7	6573	13577	25	33
8	1629.9	6070.5	30	28	8	-1341	7237.7	30	28
Native					Native Female				
-8	9902.6	8164	40	26	-8	10077	8942.3	40	26
-7	14921	16591	42	24	-7	14197	15023	42	24
-5	6827.4	6912.7	49	17	-5	5491.1	6566.5	49	17
0	-3737.9	6926.9	66	58	0	-1392.3	6726.6	66	58
5	4180.1	11658	20	38	5	839.37	12737	20	38
7	14968	10413	25	33	7	11063	9473.6	25	33
8	4187.1	5297.5	30	28	8	11820	8680.1	30	28
Female									
-8	7293	7167.2	27	16					
-7	-7003.4	10367	28	15					
-5	15618	8818.3	33	18					
0	3239.1	5537.2	43	48					
5	4066.1	15003	14	34					
7	-8788.4	5133.4	17	31					
8	-2628.5	4862.9	22	26					

Note: All models use local polynomial (nonparametric) functions with triangular kernel and the MSE-optimal bandwidth for the running variable as recommended by Cattaneo et al. (2019) and Calonico et al. (2014). Robust standard errors clustered at state level in parentheses. For levels of significance, *significant at .1, **significant at .05, ***significant at .01.

Appendix C One-way ANOVA for citizen willingness on different coproduction activities

Table A5.2.1 Summary of Coproduction Activities

Coproduction activities	Mean	S.D.	n
Watching online prevention program	3.757	1.073	1003
Neighborhood watch program	3.636	1.110	1005
Auxiliary police	3.122	1.244	1005

Table A5.2.2 One-way ANOVA for Different Coproduction Activities

Source	Partial SS	df	MS	F	Prob>F
Between groups	227.881	2.000	113.941	86.97	0.000
Within groups	3943.299	3010.000	1.310		
Total	4171.180	3012.000	1.385		

Table A5.2.3 Pairwise Comparisons of Means with Equal Variances

Coproduction activities	Contrast	S.D.	t	Tukey P> t	Tukey [95% conf. interval]
Neighborhood watch v. Watching online prevention program	-0.121	0.051	-2.37	0.047	-0.241 -0.001
Auxiliary police v. Watching online prevention program	-0.634	0.051	12.42	0.000	-0.754 -0.515
Neighborhood watch program v. Auxiliary police	-0.513	0.051	10.06	0.000	-0.633 -0.394