An Investigation of the Predictors and Moderators of Climate Strength

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Abstract

Organizational climate is a useful set of variables used to describe and better understand work environments that has been shown to relate to various individual and group outcomes. While most of this research has focused on the means of individual climate perceptions aggregated to higher levels, the degree of agreement or "strength" has received markedly less attention. The climate strength hypothesis states that climate strength moderates the relationship between climate perceptions and outcomes, where a stronger link is found for stronger climates (Denison, 1984; Schneider, Ehrhart, & Macey, 2013). Though this hypothesis has been empirically tested by several researchers, sample and group sizes were limited, and they were smaller scale examinations. This study used a large multi-level survey to look at climate strength from a more macro perspective involving individuals nested within large subagencies, nested within larger agencies comprising the U.S. federal government sector. First, demographic variables including gender, age, organization size, tenure, and minority status were examined as possible antecedents of climate strength, where members of the same groups (e.g., ethnic minorities, females) were expected to have greater agreement regarding their climates. Second, links between climate strength, climate level, and individual-level satisfaction were examined, including a test of the climate strength hypothesis. Results demonstrated that larger organizations had stronger climates up to a certain threshold, the youngest and newest employees were the only groups to have stronger climates than the overall group, and groups of similar gender did not display greater climate strength. In terms of links to satisfaction, relationships depended on the type of facet-specific climate strength and

level. Mixed support was found for the climate strength hypothesis, such that greater strength generally only mattered when climate level was low. Implications of these results on future climate research and change interventions are discussed.

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INTRODUCTION

Organizational climate is the description and shared meaning of various organizational characteristics gathered through the aggregation of individual-level perceptions to higher group levels including work teams, departments, and organizations (Ostroff, Kinicki, & Tamkins, 2003; Schneider & Reikers, 1983; Schneider, Ehrhart, & Macey, 2011). Organizational climate has served as a diagnostic and dynamic set of variables that has been used to understand the environmental context of organizations for more than a half century. Nearly any organizational process can be studied under a climate lens (Schneider et al., 2013), and can be linked to a variety of organizational outcomes at both the individual and unit levels, including organizational citizenship behaviors, (Ehrhart, 2004), ethical behavior (Martin & Cullen, 2006), improved safety (Clark, 2006), team performance and absenteeism (Colquitt, Noe, & Jackson, 2002), sales performance (McKay, Avery, & Morris, 2008), and customer satisfaction (Dietz, Pugh, & Wiley, 2004). Despite the vast climate literature comprising empirical studies, qualitative and quantitative reviews, and theoretical discussions, several gaps remain. This dissertation uses the large, multilevel, and longitudinal Federal Viewpoint Survey (FEVS) to provide insight on one such gap, the climate strength hypothesis.

The climate strength hypothesis suggests that climate strength, operationalized by the variance in individual climate perceptions, and with low variance indicating a strong climate, moderates the relationship between climate perceptions, and outcomes, such that stronger climates yield a larger relationship (Denison, 1984; Schneider, Ehrhart, & Macey, 2013). Though this question has been examined by several scholars, the samples

were not as large as the sample used here, and findings have been mixed. Furthermore, past investigations have included small work groups or teams nested within plants or branches, but little has been done to examine climate strength from a more macro perspective. This study looks at large subagencies, nested within even larger agencies, which are all part of the United States federal government sector. I first examine whether or not homogeneity of demographic variables such as organization size, gender, minority-status, age, and tenure are antecedents of strong climates. Second, I examine the relationships between climate strength, level, and the outcome of satisfaction.

Not only will this dissertation inform the climate literature regarding the factors predicting climate strength, and provide future directions for research, but it is also informative to practitioners. Executives and HR leaders are concerned with competitive advantage, and ensuring they are doing everything possible to run a successful enterprise (Schneider et al., 2013). Understanding the way in which climate strength is related to satisfaction is an integral piece of the puzzle, which will enable executives to strive to shape their climates and subclimates accordingly. In addition, understanding which factors impact climate strength can aid leaders in strategically choosing the proper communication pathways to control the strength of various facet-specific climates.

In the next section, I will provide a review of the climate literature and detailed background and rationale for the study hypotheses, followed by an explanation of the methodology and results. Finally, this dissertation will conclude with an extensive discussion of the results in terms of their implications for both climate research and the field.

Conceptualization of Climate

Organizational climate is often criticized for being an extremely ambiguous term. Part of the reason is likely due to the multidisciplinary nature of the study of climate. In addition to being an important topic in Management and Psychology, organizational climate is also examined under sociological and anthropological lenses. It is frequently tossed around in the literature to mean a variety of things, but it is really more of an umbrella term that encompasses a large variety of different organizational constructs. Verbeke, Volgering, & Hessels (1998) content analyzed 32 different definitions of organizational climate collected from 3 major review articles to try and understand the core agreed upon definition of climate. They found that across time, the definitions all seemed to imply that organizational climate is the way groups of people perceive their work environments. Climate involves the description of and meaning attached to various organizational practices, procedures, and policies (Ostroff et al., 1993; Schneider & Reikers, 1983; Schneider et al., 2013), and does not involve an affective evaluation of these characteristics (e.g., James & Jones, 1974; Schneider & Schneider, 1975). Climate involves the aggregation of individual descriptions of organizational characteristics to a higher unit-level, allowing inferences to be made about the environment of the unit overall.

In order to fully understand what climate is and is not, it is essential to contrast it with the related concept of organizational culture. The difference between culture and climate has been debated for decades, with both sharing some similarities. Both culture and climate are typically studied at the organizational level, taught to newcomers through

interacting with their peers, and both involve organizational contextual characteristics. However, more recently, there is consensus that culture tends to be regarded as more stable and involve deeply engrained characteristics of the environment, whereas climate tends to be more subjective, conscious, superficial and transient (Verbeke et al., 1998). In other words, culture includes aspects of the organization that are very difficult to change, such as values and assumptions (Schein, 1985, 2010), whereas climate involves more easily changeable aspects of an organization such as formal and informal policies, practices, and procedures (Ostroff et al., 2003; Reichers & Schneider, 1990; Schneider & Reikers, 1983; Schneider et al., 2011).

Culture has been described by Schein (2010) as involving multiple levels, akin to an onion, where the most superficial layer involves the artifacts of an organization. These artifacts can involve symbols, narratives, practices and rituals, and organizational language or jargon. These artifacts are easiest to observe. The next deepest layer in Schein's (2010) model includes values held by the organization, which can either be espoused, where they are held by senior management and supposed to be held by all organizational members, or enacted values, which the employees actually do internalize. Assumptions are at the core of culture and are very difficult to alter or challenge. They can be so deeply ingrained in an organization that employees do not even realize they are operating under them. Clearly, as organizational culture is based on established artifacts, values, and assumptions, it has deep and complex roots in an organization's history, making it more challenging and time consuming to measure. Culture has historically been examined using more qualitative methods such as in depth interviews and case studies,

while climate has been studied more quantitatively using employee surveys. However, in recent years, culture researchers have begun employing more quantitative measures (Schneider et al, 2011; Zohar & Hofman, 2012). This shift in methodology has blurred the lines between culture and climate to some extent, as surveys that are supposed to be assessing culture sometimes appear to overlap with climate measures.

Although the focus of this dissertation is on organizational climate, it is important to understand how organizational culture and climate go hand in hand in impacting organizational outcomes. Ostroff et al. (2003) describe an appealing mediation model in which organizational culture influences the organizational practices used by employees in the organizations, which in turn, influence employee perceptions of their work environments, also known as climate. Put another way, an organization's culture must set the scene for certain practices to be adopted through the assumptions, values, and artifacts, and employee perceptions are based on the different sorts of practices adopted by the organization. Only changing an organization's culture and expecting changes in performance is likely unrealistic, as the change in practices and employee perceptions must be communicated and implemented via a commitment to a new strategic climate (Schein, 2000). If a manufacturing organization wants to reduce the number of accidents on the job (outcome), the culture must first be in line with the outcome. If the organizational culture is full of narratives about employees getting injured and unsympathetic managers and senior leaders, it will be extremely difficult to improve safety within the organization. On the other hand, an organizational culture in which the CEO frequently mentions the value of safety in his or her daily e-mails to the

organization, and the organization has a long history of humane and ethical treatment of employees, it will be much easier, though certainly not sufficient, to reduce the number of accidents. The organization must also make changes to the policies and procedures employed (e.g., changing the dress code and banning open-toed shoes, to help prevent injuries caused by dropping heavy equipment, rewarding work units with the fewest annual accidents, monitoring manager enforcement of new safety procedures). These changes in practices, policies, and procedures, will lead to changes in employees' descriptions and perceptions of safety in their work environments (safety climate), which will in turn help decrease the number of accidents.

A Brief History of the Study of Climate

Although climate and culture researchers now have a better idea of how to describe climate and culture, and how they relate to one another, this bit of clarity has taken many years to achieve. The term "climate" in an organizational context was first used by Lewin, Lippitt, and White (1939) stemming from Lewin's field theory. Lewin came up with the equation: B=f (P*E) (behavior is a function of the person times the environment). In other words, Lewin believed that a person's behavior was a reflection of the interaction of both their own individual characteristics such as personality, cognitive ability, etc., and environmental factors. Lewin and his colleagues (1939) tested the model that leader style (democratic, autocratic, or laissez-faire) influenced the organizational environment, and interacted with person characteristics to influence employee behavior, and found that employees were about equally productive under democratic and autocratic leaders; however they were more satisfied, and worked more harmoniously under a

democratic leader style. Strong interest in organizational climate continued on through the 1960s and 1970s, as there was a shift from studying climate at the individual level to viewing it as a multilevel organizational phenomenon which warrants aggregation to larger unit levels (Schneider et al., 2013). There was also a push following these decades to studying specific types of climates (e.g., climate for safety, innovation) rather than attempting to gauge all aspects of a global climate (Ostroff et al., 2003). Climate research was briefly overshadowed by growing interest in organizational culture during the 1980s. Since the turn of the century, climate appears to have reclaimed its position of interest over organizational culture. In a recent review, Schneider and colleagues (2013) examined the number of articles published since 2000 in three top I/O Psychology journals, *Personnel Psychology*, *Journal of Applied Psychology*, and *Academy of Management Journal*, focusing on either culture or climate, and found five times more articles on climate than culture. Today, climate continues to be an integral part of Organizational Psychology, and has been the focus of a multitude of reviews spanning the last half century (Field & Abelson, 1982; Hellriegel & Slocum, 1974; James & Jones, 1974; Kuenze & Schminke, 2009; Payne & Pugh, 1976; Schneider et al., 2013; Woodman & King, 1978).

Unit of Analysis

As mentioned above, most of the climate literature during the 1960s and 1970s examined climate at the individual level, leading to a great deal of discussion and confusion over the unit of theory versus the unit of measurement (Schneider et al., 2013). Though the general term "organizational" climate is often used in the literature, it is

sometimes used erroneously. Psychological climate refers to individual perceptions of the climate, and when these individual perceptions are aggregated to a work group, or organizational level, it is considered organizational climate (James & James, 1989). Aggregation to the organizational climate level is now widely accepted. Schulte, Ostroff, and Kinicki (2006) examined the effects of both individual-level and unit-level climate perceptions on individual job satisfaction together in the same study. They found that unit-level climate perceptions accounted for variance in job satisfaction above and beyond the variance accounted for by individual-level climate perceptions, suggesting that unit and organizational climates are in fact different from individual-level psychological climates, as a work group has an influence on the outcome variable that extends beyond the attributes of its members (Blau, 1960).

Aggregation is also necessary as individual perceptions aggregated to the subunit or organization level provide a more reliable picture of where the organization actually stands on the various climate dimensions (Pritchard & Karasick, 1973). An individual employee may have had a fight with his or her spouse that morning, or may have been suffering from a migraine while completing the climate measure, leading them to rate the climate less favorably than they otherwise would have. Furthermore, rater errors such as halo and severity may come in to play for individual climate ratings, but aggregating to a unit level is a better representation of the group's perceptions, without being overly influenced by rater errors. Just as individual items are viewed as less reliable than internally consistent scales comprised of multiple items, measures assessing individuals' perceptions about climate may be less reliable indicators of organizational climate (Jones

& James, 1979; Lord & Novick, 1966). In addition to sources of random and rater errors accounting for differences among individual perceptions, there is likely also true variation in individual climate perceptions. Particularly in larger subgroups or organizations, individual employees are simply exposed to different organizational environments (e.g., different supervisors, branches, practices), so naturally there will be greater variability in what individuals report. However, aggregating to higher levels gives the view of a typical or average employee. As will be discussed later, there are also often informal subclimates present within these larger units, demonstrating the meaningful differences that exist in climate perceptions, but as long as there is adequate within-unit agreement, aggregation to higher units is still appropriate.

The Shift from Molar to Facet-specific Climate

Climate research from the 60s and 70s yielded an unwieldy list of climate dimensions, with little organization or consensus to what exactly should and should not be considered climate. Researchers tried to link all sorts of variations of what they thought was climate to organizational outcomes, naturally providing little validity evidence for climate. In 1970 Campbell, Dunnette, Lawler, and Weick came up with four broad climate factors after reviewing the literature; individual autonomy, the degree of structure imposed on the position, reward orientation, and consideration warmth and support. They voiced some concern that there were so few factors being measured in the current climate measures, and there was a lot of variance that was not being explained. From that point onward, there have been many studies which have attempted to uncover "the" taxonomy of climate dimensions (e.g., Schneider & Bartlett, 1968), culminating in

a fairly comprehensive taxonomy derived by Ostroff (1993). Ostroff (1993) developed a comprehensive taxonomy of climate dimensions which involves three higher order facets, that each encompasses four specific dimensions. The Affective higher order facet has to do with workplace interpersonal relationships and includes participation, cooperation, social rewards, and warmth. The cognitive facet has to do with an individual's involvement in work projects, and includes the dimensions of autonomy, growth, innovation, and intrinsic rewards. The final higher order facet is instrumental, which involves how things get done in the organization including dimensions like hierarchy, achievement, extrinsic rewards, and structure. Although the Ostroff taxonomy is pretty widely accepted, many scholars have described climate as being limitless in terms of the types of dimensions it can cover (e.g., Schneider et al., 2013), so instead of focusing on pinpointing all of the dimensions of molar climate, climate researchers have shifted to a more facet-specific approach (Schneider, 2000).

Schneider (1975) was one of the first to suggest greater bandwidth matching of climate measures to outcomes of interest (e.g., linking safety climate to number of accidents), as is a common practice in other realms of I/O Psychology, stemming from the bandwidth-fidelity issue (Cronbach & Gleser, 1957). The idea of more focused measures caught on, and is now the norm in climate research. In addition, in the 1980s, researchers realized that making a statement like "climate is related to X" essentially meant nothing. It is not appropriate to talk about climate as its own entity, as it can only be defined in terms of its focus (i.e. a climate for what). In the now infrequent situation in which a generic measure of molar climate is employed, it is important to talk about

relationships in terms of the climate dimensions themselves. As a result of this dilemma, there has been a major shift from discussions of molar climate, which encompass all dimensions of climate, to a focus on a variety of facet-specific climates which have narrow focus on specific aspects of climate and more specific outcome variables (Ostroff et al., 2003). These facet-specific climates include, but are not limited to climate for justice (Naumann & Bennett, 2000), voice (Morrison, Wheeler-Smith, & Camdar, 2011), safety (Zohar, 2000), innovation (Anderson & West, 1998), ethics (Victor & Cullen, 1987, 1988), diversity (McKay et al., 2008), and service (Schneider, White, and Paul, 1998). Similar to the stronger link between specific attitudes and their corresponding behaviors, the use of facet-specific climates with performance measures has yielded larger relationships (Schneider, Bowen, Ehrhart, & Holcolmbe, 2000), and thus greater predictive validity evidence for climate. One drawback of the shift to facet-specific climates however, is that it has led to a degree of fragmentation of the climate literature (Kuenzi & Schminke, 2009).

It should be noted that organizations are characterized by various combinations of different facet-specific climates, with varying emphasis placed on each; for instance, an organization may simultaneously have a strong climate for customer service, ethical business, and honest feedback. The mean scores or climate "level" reflect the employee perceptions of prioritization of various facet-specific climates (e.g., lower climate for social responsibility than for safety climate suggests safety is perceived as being more important).

Construct Validity of Climate

Due to the broad and inclusive nature of organizational climate, it has previously received some criticism that either the facet-specific climates are not actually distinct, or that climate in general is a repackaging of already established constructs. However, most climate researchers would argue otherwise, with convincing validity evidence to back them up. Joyce and Slocum (1984) highlight three ways in which construct validity of climate measures may be demonstrated. First, finding significant aggregated mean and variance differences for the same unit across various facet-level climates, shows discriminant validity for each specific facet-level climate. In general, there is ample support for the existence of many distinct facet-level climates (e.g., Drexler, 1977; Howe, 1977; Newman, 1975). Second, to ensure that these various climate measures are measuring what they are supposed to be measuring, the climates should predictably relate to certain outcomes (typical construct validity; i.e. service climate should be related to higher customer satisfaction ratings, as found by Schneider and colleagues (2000). Schneider, White, and Paul (1998) conducted a longitudinal study of service climate over 4 years in which they aggregated to the branch level. They found that there was a reciprocal relationship between service climate and customer perceptions of service quality. Other scholars have found relationships between climates matched with outcome variables such as climate for innovation and innovativeness (Anderson & West, 1998; Ostroff et al., 2003; Schneider & Bowen, 1985; Schneider, 2000; Zohar, 1980).

A third source of evidence, which is really a form of reliability, is the degree of agreement of climate perceptions amongst members of an aggregate unit (Joyce & Slocum, 1984). Even when researchers decide a priori, as is often done, to aggregate

according to formal work group, or regional plant, there needs to be sufficient agreement between members' perceptions to show that the climate measure is assessing the specified construct, and that the perceptions should in fact be aggregated to that level. A discussion of appropriate standards for aggregation is presented later in this review.

Differences between Climate and Satisfaction

Several scholars have argued that measures of organizational climate as measured by employee perceptions are essentially redundant to other work attitude measures such as job satisfaction (Guion, 1974; Johanneson, 1973). The primary logic behind this argument is that individuals' perceptions can't be objectively verified, and are therefore only indicators of individual attributes, and perceptions, even when descriptive in nature, can be colored by attitudes. Guion also cites several studies in which there were very high correlations between satisfaction and perceived climate measures. Schneider and Schneider (1975) critiqued Guion's choice of studies as evidence for mainly focusing on the individual as the unit of analysis, where others have argued that this is not the appropriate level at which to examine perceptions of organizational climate. They investigated the relationships between responses aggregated to position type, on a climate measure, two satisfaction measures, as well as a turnover measure, and found that the satisfaction dimensions were more highly related to one another than they were with any of the climate dimensions, with a mean correlation of 0.21. The size of this relationship by no means suggests that climate and satisfaction are one and the same (Payne, Fineman, & Wall, 1976). Many other studies have yielded similar findings of less than perfect correlations between satisfaction and climate (Joyce & Slocum, 1984) further

bolstering the point that they are two distinct constructs. Schneider and Schneider (1976) provided divergent validity evidence with a stronger correlation between satisfaction and turnover than with climate and turnover. They also found some evidence of stronger agreement about climate perceptions than with satisfaction, further bolstering the idea that climate is a characteristic of an organization's members, or organizational sub-unit members, whereas satisfaction is more of an individual attribute.

Schneider (note 9) had raters read a list of mixed satisfaction and climate items to determine which was which, and the majority of participants were not able to tell the difference. Although it might appear that means climate and satisfaction do not differ, Payne and colleagues (1976) point out that both types of measures examine the same topical areas, so they may appear very similar to an untrained eye, but both the unit of analysis, and the descriptive versus affective aspects of climate and satisfaction make them very different (Ostroff, Shin, & Kinicki, 2005; Schneider & Snyder, 1975).

Operationalization of Climate

Climate level. Organizational climate can be measured in several different ways. It is most often studied under the direct consensus composition model (Chan, 1998), which assesses climate level, or the mean of individual perceptions within a designated unit (e.g., team, group, organization). Before aggregating the individual responses, a satisfactory level of within group agreement must be found to justify that the aggregation of individual responses is in fact, meaningful. The mean as used as an index of the "level" of the respective facet-specific climate (Chan, 1998; Lindell & Brandt, 2000; Zohar & Luria, 2005), and the means are compared to determine the order or

prioritization of each facet-specific climate, in comparison to others (Zohar & Tenne-Gazit, 2008).

A similar model involving climate level is the referent shift consensus model, which is often the preferred model for studying climate (Bleise, 2000; Chan, 1998; Klein & Kozlowski, 2000; LeBreton & Senter, 2008). The key difference between this and the direct consensus model is that In this model, survey items measuring climate from individuals are worded in reference to the work unit or organization (e.g., "members of my agency are encouraged to come up with new and innovative ways of doing things."), instead of the individual (e.g., "I am encouraged to come up with new and innovative ways of doing things."), since the individual responses will be aggregated to these levels (Chan, 1998), and as climate is now widely accepted as a property of organizations or units, rather than individuals. In terms of agreement, there tends to be greater consensus regarding climate perceptions using the referent-shift consensus model over its alternatives (LeBreton & Senter, 2008).

Climate strength. A moderately correlated concept to climate level is called climate strength (Lindell & Brandt, 2000; Schneider, Salvaggio, & Subirats, 2002; Zohar & Luria, 2005). Using the dispersion composition model, the group-level construct is defined as the variability in the individual construct (i.e. variance or standard deviation of psychological climate perceptions in the group; Chan, 1998), and the main focus is on the degree of within group agreement or "strength" of the climate. The idea of climate strength is a relatively new concept, which was taken from a comparable idea called organizational culture strength. Culture strength originated in the deviance model of

culture (Martin, 1992) or the dissensus model of culture (Trice & Beyer, 1993). These concepts stemmed from Mischel's (1976) work on situational strength. Essentially, Mischel (1976) posited that "strong" situations result when certain characteristics of situations cause similar perceptions, expectations, and subsequent behavior amongst individuals due to lack of ambiguity (e.g., organizations with many safety practices and policies will lead to greater agreement regarding safety climate). In other words, strong situations lead to greater agreement in people's perceptions, and thus greater strength.

The "strong" culture hypothesis (Denison, 1984) suggests that organizations that have a more consistent organizational culture are likely to yield higher performance. Basically, strength is thought to moderate the relationship between climate perceptions and outcomes, with greater strength leading to a stronger relationship. The main logic for this hypothesis is that, those who are exposed to the same situation, will respond more consistently to climate survey items, and will consequently be more likely to behave more consistently positive or negative, depending on the variable being examined. For instance, an organization that has a strong climate for customer service would have greater agreement about the climate from the employees, and this would result in greater consistency in customer satisfaction ratings, whereas if perceptions of the customer service climate were more variable, the customer satisfaction ratings would be more variable as well. In fact, this is exactly what was found in a study of bank quality service climate conducted by Schneider and colleagues (2002). Further, greater consistency means a more reliable evaluation of the climate, which is necessary (though, not sufficient) for validity (Schneider et al., 2013). Additional evidence in support of the

climate strength hypothesis has been found by Colquitt and colleagues (2002) and Gonzalez-Roma, Peiro, and Tordera (2002). However, several scholars have failed to find support (Dawson, Gonzalez-Roma, Davis, & West, 2008; Lindell & Brandt, 2000; Rafforty & Jimmieson, 2010; Schneider et al., 2002; Zohar & Luria, 2004). One possible explanation for the null findings is that several of the studies that failed to find evidence of the strength moderator had extremely high levels of across unit consensus (Schneider et al., 2013). As some measure of variability is necessary to detect moderation, the overly homogeneous responses may have caused issues. Another possibility is that the link between climate strength and outcomes is actually curvilinear or U-shaped rather than a more linear relationship (Dawson et al., 2008). Particularly for larger units of study (e.g., whole organizations), too much agreement, may suggest that the rules are very rigid within the entire organization, and that individual workgroups have very little autonomy to diverge from the organization's climate (Dawson et al., 2008). On the other hand, having very low levels of agreement regarding the climate may suggest there isn't really a climate at that level. In either of these situations, relationships with outcomes may be weak (Dawson et al., 2008). This subject matter remains largely unexplored with only a dozen or so empirical investigations, and the mixed results point to a strong need for deeper study. In this investigation, I will look at climate in terms of both level (mean) and strength (variance) of aggregated responses.

Justification for Climate Aggregation

As mentioned earlier, in order for the mean of aggregated climate perceptions (climate level) to indicate meaningful climate, each unit must show satisfactory levels of

within group agreement. There are two main approaches to assessing agreement of climate perceptions: interrater agreement, and interrater reliability (Schneider et al., 2013). Interrater agreement indices indicate how similar individual responses are to others in the organization, unit, team, or however they are being aggregated, and are used to provide justification for aggregation to the designated level in hierarchical models. One common index of within group agreement is RWG (James, Demaree, & Wolf, 1984).

Interrater reliability in this context refers to the within unit consistency of the rank ordered evaluations of the various aspects of climate (Schneider et al., 2013). This approach removes the effects of some common rater errors such as halo and severity, and is often indexed by the intraclass correlation or ICC(1) (LeBreton & Senter, 2008). These agreement indices not only assess the climate strength, but also prevent researchers from aggregating overly heterogeneous responses that should not be aggregated at all.

Saffold (1988) called to attention several practical issues relating to culture strength, which can easily be applied to climate. For instance, he argues that the definition of what constitutes a strong from a weak culture is unclear. Is strength indicated by a certain degree of agreement all throughout the organization? What is this level and how much variation is allowed within the definition of strength? While the indices mentioned above may be used to assess adequate levels of agreement, the primary focus in studies of climate strength is the variation itself. This means that as long as there are a sufficient amount of units with satisfactory agreement, that units with lower agreement do not need to be eliminated from investigation of climate strength. Restricting the range of the

variation by eliminating low-agreement units would attenuate the relationships of interest between climate strength and other variables (Colquitt et al., 2002). In fact, some studies examining both climate level and strength together disregard within group agreement indices due to their inclusion of climate strength (e.g., Colquitt et al., 2002); however, since I will also be examining climate level alone at times, it is necessary to ensure adequate agreement for those instances.

Climate Antecedents

Climate formation. In order to better understand climate strength, it is first necessary to discuss the ways in which climate is actually formed within organizations. Moran and Volkwein (1992) discuss three main approaches of climate formation. The approach most similar to Mischell's view is referred to as the structural approach, where climate is a characteristic of the organization, without paying heed to what individuals might bring with them to the organization. The basic premise is that individual employees are all exposed to the same organizational features, such as the organization's size, type of technologies, and number of hierarchical levels of an organization, and thus have similar views of the climate (Payne & Pugh, 1976). One of the main issues with this perspective is that it ignores individual differences, and the impact they may have on climate perceptions. It basically assumes that climate is an objective feature of the organization, though it is measured perceptually from employees, and that the perceptual measures are identical, except for measurement error. In reality, individuals are not computers, which reliably use a mathematical formula. People are different, and thus may perceive organizational features differently. Under this approach, one would also expect

that climate perceptions could be accurately predicted by objectively observing the organizational features, but this may not be the case. If it is known that an organization allows employees to telework, it is not necessarily true that employees will perceive the organization as being supportive of teleworking, as this policy may be poorly communicated to employees, or perhaps employees who telework end up receiving fewer opportunities than those who work onsite.

A second approach that takes the opposite extreme view is the perceptual approach. According to this approach, climate is not a property of the organization, but rather involves individuals interpreting the organizational environment in a way that is psychologically meaningful to them. Individuals bring their own personal characteristics such as personality and supervisory style to the table, and impose them on the meaning of the situation. In other words, employees' individual characteristics serve as moderators of climate perceptions (Field & Abelson, 1982). Subclimates are able to form under this perspective as individuals with similar characteristics may be more likely to have shared climate perceptions (Joyce & Slocum, 1984). High social cohesion and group homogeneity can lead to greater agreement of climate perceptions and stronger climates, and will be discussed later.

The interactive approach to climate formation builds upon the perceptual approach by including social interaction as a core factor that determines climate perceptions (Moran & Volkwein, 1992). The main difference is that not only do individuals impose their own characteristics to give meaning to the situation, but they create shared meaning by interacting with one another. There is some empirical support

for this approach (e.g., O'Driscoll & Evans, 1988) which demonstrates that communication between organization members is a key factor in the formation of climate. Moran and Volkwein (1992) describe two ways in which social interaction can influence climate formation. First is Husserl's (1913) idea of intersubjectivity, which suggests individuals pay attention to others with experiences similar to their own because they assume they perceive the world similarly, and use these others as models while developing their own selves and perceptions. In an organizational context, individuals form their climate perceptions based on those of coworkers who they think are similar to them (Joyce & Slocum, 1979; Poole & McPhee, 1983). Individuals become aware of others' perceptions through social interaction.

Another potential route for climate formation through the interactive approach, as adapted by Schneider and Reikers (1983), follows George Herbert Mead's (1934) Symbolic Interactionism theory. This theory posits that the environment and the individual both influence one another, and that the meaning of a given situation is derived through interactions between individuals and their social environment. That is, individual employees continually check and transform their climate perceptions as they interact with their coworkers. Young and Parker (1999) found empirical support for the Symbolic Interactionism perspective in their study of manufacturing employees. They found that those who tended to interact for information seeking and sense making purposes tended to share a collective climate.

Moran and Volkwein (1992) criticize the interactive perspective for failing to enforce the importance of the environment in constraining the perceptions formed

through the social interaction. They outline an additional perspective, the cultural approach, which adds on to the interactive approach by laying out a clear relationship between culture and climate. An organization's culture places constraints on the perceptions organization members may have regarding the climate, and thus the culture and the social meaning derived through social interaction together determine the climate. This approach is somewhat similar to Ostroff and colleagues' (2003) mediation model (and the safety climate scenario) discussed earlier, with a greater emphasis on the impact of social interaction.

Clearly, social interaction plays a major part in climate formation, and since people tend to interact most often with those who work near them, or are part of their immediate work team, it makes sense that although employees may be aware of an overall organizational climate as endorsed by top leadership, they are probably also part of smaller subclimates within the organization. The nested nature of subclimates within a larger organizational climate suggests that subclimates may have their own set of different antecedents. Saffold (1988) outlined a model demonstrating how subcultures and subclimates are formed, with the differentiation from the larger climate occurring through different people interacting with certain others and coming in contact with specific parts of the organization, but perhaps not others. Those in a work group made up of members who recycle often and are friendly with one another likely have a more environmentally sustainable and supportive climate, whereas another work group within the same organization may be more wasteful and independent. Zohar and Luria (2005) explain how policies are communicated from the top down with a set of procedures to

show how the policies should be enacted. These procedures are carried out differently within work groups due to supervisory discretion in which practices the supervisors employ. Some supervisors might in practice prioritize differently in times of high pressure productivity (e.g., lax safety procedures during the busy season) while other supervisors stick closely to the organization's safety procedures at all times, leading to differentiations in the climate perceptions of employees between various groups, and a differentiation of organizational climates to work group climates. The same process can occur at a broader organizational level, where larger sub-departments create subclimates, and organizations within the same sector or industry create their own subclimates based on how top management or governing body mandates are communicated and enforced.

Several studies have found that subclimates form according to formal work groups (Drexler, 1977; Pritchard & Karasick, 1973), whereas others have failed to find any relationships between subclimate formation and work groups, hierarchical levels, or regional branches (e.g., Howe, 1977). The discrepancy is likely due to the existence of informal social groups which may or may not overlap with the work group (Ostroff et al., 2003). Non-task-related interactions might foster friendships to form more easily than strictly work-related interactions. Perhaps employees from a work group who play for the company softball team tend to get along better than those from other work groups. Informal social groups are often more cohesive and similar to one another than formal work groups (e.g., Young & Parker, 1999), and thus formal work groups by themselves are likely to yield smaller agreement statistics like ICCs, since there are likely more homogeneous informal groups nested within and across the formal groups. However,

identifying these informal groups is a much more involved process that typically begins with the data and goes backwards. There are several studies that examine collective climate, which describe shared climate between individuals, regardless of whether or not they are members of the same formal group (Jackofsky & Slocum, 1988; Jermier, Slocum, Fry, & Gaines, 1991; Joyce & Slocum, 1984; young & Parker, 1999). They usually use some sort of cluster analysis techniques to identify and group individuals with similar survey responses together as having a collective climate. Although these studies can be informative in shedding light on determinants of strong climates, climates of informal work groups are of little concern to organizations as compared to the formal work structures. Organization's form teams and subunits to accomplish specific sets of tasks as a group, so they will be more concerned with the climate strength of formal groups and organizations, and how that impacts their group outcomes like performance or satisfaction, thus, beyond examining antecedents of climate strength, this investigation primarily focuses on formal federal agencies within the United States government, and the formal sub-agencies within them.

A Macro Multilevel Approach to Climate Strength

As climate perceptions are typically measured individually and then aggregated to form a group construct, it is no surprise that there are many multilevel climate studies in the literature (Joyce & Slocum, 1984; Naumann & Bennett, 2000; Schulte, Ostroff, & Kinicki, 2005; Zohar & Luria, 2005). These studies frequently involve a series of small work groups nested within regional branches, or organizations. There are also studies in which individuals are aggregated to a larger organizational level, (e.g., Dawson et al.,

2008; Patterson et al., 2005), although these types of data are harder to come by. Patterson and colleagues (2005), for instance, studied climate of 6869 employees nested within 55 different manufacturing organizations in the UK each ranging from 60 to 1929 employees. These studies of climate level are very informative; however no such macro level study of climate has been undertaken to examine climate strength. Furthermore, no study has focused on climate strength of organizations and departments that are all part of the federal governmental sector. Unlike other industries such as retail and manufacturing, the governmental sector includes jobs across various industries, while still being unified jobs under the federal government. Some scholars have examined climate strength within military platoons nested within brigades (e.g., Zohar & Tenne-Gazit, 2008; Zohar & Luria, 2004), but these only focus on the armed services, and did not take the macro perspective across multiple governmental organizations.

Despite being involved in very different lines of work, all federal employees are still public employees, directly affiliated with the national agenda of the United States government, and therefore likely share some common values that have trickled down from the top. Government jobs have a longstanding reputation for being desirable and relatively stable positions. Employees receive generous benefits and vacation time, and share these benefits with all other federal employees, making it likely that there is a certain degree of consensus regarding climate perceptions among all federal employees.

Although the broad hierarchy of the subagencies and agencies within the governmental sector exists, due to the macro nature of these nested relationships, it is particularly important to statistically verify that the nesting of the data actually matters.

That is, individuals within the same nested categories should be more similar to one another than individuals who are randomly selected. Even though the subagencies are fairly large, is some of the variance in the constructs still largely influenced by the agency or sector in which they reside? Should the data be modeled hierarchically? Due to the influences of the government sector as a whole and centrally controlled factors, it is suspected that the nesting within the data indeed matters, and must be modeled as such.

Hypothesis 1: The nesting of individual federal employees within subagencies, within agencies, will matter, such that individuals within nested categories will be more similar in their climate perceptions than individuals randomly selected.

Zohar and Luria (2005) examined correlations between organization and workgroup safety climate levels and strength, finding a 0.41 correlation between climate level at the two aggregate levels. Climate at these various aggregated levels are clearly not the same. The aggregation of responses also involves the meaning attributed to the climate, which is formed by groups of individuals. As meanings formed by subagencies versus whole agencies could majorly differ, the question of whether subagency or agency membership has a stronger impact on satisfaction could be useful information to organizations trying to improve employee satisfaction levels. I anticipate that the subagency will have a greater impact on satisfaction as it is a smaller group that is more proximal to an individual.

Hypothesis 2: Subagency membership will have a stronger relationship with satisfaction than will agency membership.

Antecedents of Climate Strength

When it comes to the determinants of climate strength, two main antecedents typically emerge: leadership, and group homogeneity. Leadership tends to be more influential to the entire organization and its climate strength, whereas group homogeneity varies in scope such that it can be discussed in terms of informal social groups, or larger formal organizational units. This dissertation builds on the idea of group homogeneity as a correlate of climate strength, but it will not examine leadership. The discussion surrounding leadership is intended to provide the reader with greater background of other common predictors of climate strength, and provide context for the presentation of the hypotheses.

Leadership. The idea that leadership drives climate perceptions has been prevalent since Lewin's work with democratic, autocratic, and laissez-faire leaders, mentioned earlier, and has remained a major topic in climate research. A recent meta-analysis shows a 0.61 relationship between leadership and safety climate (Nahrgang, Morgeson, & Hofmann, 2006). Litwin & Stringer (1966) simulated 3 distinct organizational climates by way of the leader's orientation. It seems likely that the overall climate strength depends on a leader's ability to communicate their orientation to the entire organization. This has to do with the idea of espoused versus enacted values in an organization's culture. If the leader is an effective communicator, he or she will be better able to send down the message of an espoused value, and encourage managers and employees to adopt and hold these values, so that they become enacted values. Studies show that stronger climates result when leaders communicate more information regarding the goings on of the organization (Gonzalez-Roma et al., 2002) and send an honest, and

consistent message to employees (Zohar & Luria, 2004). One particular type of leadership orientation that is especially effective in doing this is Transformational leadership (Luria, 2008; Zohar & Luria, 2004; Zohar & Tenne-Gazit, 2008 ;). Transformational leaders are known for being charismatic and getting others to adopt their visions (Bass, 1990; Burke et al., 2006; Shamir, House, & Arthur, 1993), so it is only logical that organizations with transformational leaders are more likely to have higher organization-level climate strength. Zohar and Tenne-Gazit (2008) also point out that transformational leaders through individualized consideration, tend to have a more open, honest and trusting relationship with their followers (Bass, 1990), which provides more information for subordinates and likely helps employees to internalize the leader's values as their own enacted values instead of espoused values, since they have that closer trusting relationship with the leader. Finally, transformational leaders have been found to present a more consistent message to subordinates, than non-transformational leaders (Zohar & Luria, 2004), which helps to re-enforce the priorities of the organization, resulting in stronger climates (Zohar & Tenne-Gazit, 2008).

Group homogeneity. Proponents of the strong hypothesis often argue that homogeneity of members causes similarities in individual's sense making of the environment, thus resulting in a homogeneous climate. One area of research dealing with homogeneity of work units is the study of person-environment fit. Person-environment fit involves assessing the compatibility of personal characteristics and various aspects of the workplace. The content dimensions typically measured to evaluate person-environment fit include congruence of work values (e.g., working with children, high salary), work

goals (Judge & Bretz, 1992; Ravlin & Meglino, 1987), goals (Vancouver & Schmitt, 1991), personality (Piasentin & Chapman, 2005), and knowledge, skills, and abilities (KSAs; Piasentin & Chapman, 2005), which are similar aspects to those involved in organizational culture and climate. In fact, such measures have frequently been used to assess fit (e.g., Organizational Culture Profile; O'Reilly, Chatman, & Caldwell, 1991). Within the person-environment fit framework, several specific fit relationships have been identified in the literature such as person-organization, person-job, person-vocation, and person-group fit (Kristof-Brown, Jansen, & Colbert, 2002). Person organization fit is the congruence between personal traits and values with the cultural norms and values of the organization (Adkins, Russell, & Werbel, 1994). As this is a broader index of fit, it is more likely to reflect the espoused values of the organization, which are more in line with a central mission statement. Person-group fit is the degree of compatibility between an employee and his or her workgroups. As it directly refers to the work group level, this measure of fit likely has the greatest impact on whether or not a work group or unit is homogeneous. Person-job fit is the extent of congruence between an employee's personal traits, including personality, knowledge, skills, and abilities, and the characteristics of the job and task sets required in the workplace. Similarly, person-vocation fit is the degree of compatibility between an individual and a given career. Both person-job and person-vocation fit are less specific to the nuances of particular organizations and work groups, but they still involve a sense of homogeneity in the sense that those in the same job or vocation often chose that job or vocation because they all share similar interests, or have similar personal characteristics and values that are necessary for the job. For instance,

social workers tend to have a higher level of empathy, and are less interested in making a lot of money and more committed to helping others, thus they may be more humanistic and liberal as a profession than corporate lawyers. Employees with low levels of any of the aforementioned types of fit, may be less engaged, or resent the organization, and thus refuse to conform to the culture or have distorted perceptions of the climate.

Across these different levels of person-environment fit, a distinction is sometimes made between supplementary and complementary fit (Cable & Edwards, 2004; Muchinsky & Monahan, 1987). Supplementary fit is where there is a match between the person and the environment, typically regarding characteristics, values and goals. The person does not reshape the environment or those in the environment, but supplements the already established culture. In contrast, complementary fit is more of a give and take relationship in which the needs and demands of an organization are met by an individual, or vice versa. Employees bring their ideas, skills, and motivation to fill an organization's need (e.g., strategic thinking skills can help re-direct a failing business), and in turn, the organization fills the employee's need for achievement or professional development through recognition and promotions. Regardless of whether there is supplementary or complementary fit, the result is greater homogeneity

Within the fit framework, there are several theories explaining how work units become homogeneous. Murray's Needs-Press theory posits that the work environment provides a chance for employees to gratify their needs when the environment fits their needs (the press), resulting in positive affective outcomes. Individuals with higher need

for achievement will find this need met in organizations or units where there are greater opportunities for advancement and employee awards and recognition.

Reinforcement theories (e.g., Vroom, 1964) describe a process in which individuals seek out and remain in environments (e.g., workplace) where positive reinforcements are maximized. If an employee has many close friends at work, he or she will have more reason to remain with the organization or work unit. Schneider (1987) attraction selection attrition model (ASA) outlines the way in which similar employees are initially drawn to and hired by the same kinds of organizations and jobs, increasing their homogeneity. Particularly during times of economic turmoil, individuals are desperate for any jobs, and often overlook their level of person-environment fit. However, this realization may hit later, when actually on the job, and it becomes obvious how misaligned their characteristics and values are with those of their organization, vocation, or work group. Those who realize they do not fit in well are more likely to turnover, making the organization even more homogeneous, and thereby increasing agreement regarding climate perceptions. Essentially, the ASA model suggests that the people make the place.

Employee socialization can also aid in this process by putting new employees in the majority mind set or getting them to adopt certain perceptions of the organization's climate. There are several ways in which socialization tactics differ. Formal socialization involves the segregation of newcomers from seasoned organizational members for a clearly defined socialization period, whereas informal socialization does not distinguish newcomers from the rest of the members. The formal socialization is where employees

learn the espoused values of the organizations, and are made aware of the centrally controlled policies and procedures, while informal socialization is where employees interact with others to get a better idea of how things really are in terms of enacted values. The goals of socialization can also differ where investiture affirms the current personal characteristics and identity of the new employee, and embraces them, while divestiture has the goal of denying and chipping away at their current identity so that they take on the values and new identity fitting with the organization. These different socialization tactics likely result in different degrees of homogeneity.

Although it seems logical that group homogeneity is related to climate strength, little empirical research has actually examined this question. The limited studies that have, however, demonstrate that climate strength tends to be greater when groups are smaller in size, and less diverse (Colquitt et al., 2002), when group members interact frequently (Gonzalez-Roma et al., 2002), when members identify with their group (Roberson, 2006), when members overall have been around the organization for a longer period of time (Beus, Bergman, & Payne, 2010), and when groups are more cohesive (Luria, 2008). Building upon the idea of social cohesion and group homogeneity as predictors of climate strength, I now propose a number of specific predictors of climate strength.

Subagency and Agency Size

The number of employees working for an organization is likely to impact the strength of climate perceptions for several reasons. First, there is less power distance from the top management. The policies and procedures instituted by top management do

not have as far to be communicated since there are fewer employees, and thus there is less of a chance for the message to get lost in translation, or disregarded by immediate supervisors. Secondly, smaller groups tend to be more cohesive, and as mentioned above, greater cohesion has been linked to greater climate strength. Finally, it seems probable that smaller groups might be more homogeneous than larger groups. An outsider who does not feel like he or she fits in with the smaller number of employees would likely come to this realization sooner than in a larger organization, where the possibility of others more similar to one's self is more of a possibility. In line with the ASA model (Schneider & Reikers, 1983), those with poor fit to the organization would probably leave sooner, making the organization even more homogeneous. As large departments and federal agencies, as well as small and independent federal agencies were surveyed, the small agencies are expected to in general have stronger climates than the larger departments and agencies.

Hypothesis 3: Subagencies and agencies with fewer employees will have stronger climates on average than subagencies and agencies with more employees.

Individual Differences

Stemming from the interactive approach to climate formation, various individual characteristics such as individual demographics have been thought to influence individuals' perceptions of their climates. It is suspected that those who are more similar to one another are more likely to perceive things similarly through either intersubjectivity or Symbolic Interactionism. Sex, age, race, and national origin are all protected classes under Title VII of the Civil Rights Act of 1964. The reason they are now protected

classes is that people were being treated differently due to these demographics, and were being grouped together and stereotyped. All of these groups had their own struggles in which they banded together with others sharing their demographics to fight for just treatment and equality. Stories of these shared struggles have been passed down through history, carrying with them certain values that some members continue to internalize today. Those with similar demographics tend to hold similar values (e.g., Brenner, Blazini, & Greenhaus, 1988; Cennamo & Gardner, 2008), and values are thought to create a cognitive schema that individuals use to interpret their situations and evaluate climate (James & James, 1989). That is, those with similar demographic characteristics hold similar values, creating a more homogeneous group, and those with similar values have similar climate perceptions (Klein, Conn, Smith, & Sorra, 2001). The sparse research examining demographics and climate formation has demonstrated relationships between shared demographics and climate perceptions (Colquitt et al., 2002; Gavin, 1975; Herman, Dunham, & Hulin, 1975; Joyce & Slocum, 1984). It is reasonable to expect that members within the same subagency who have similar demographics, including age, gender, and ethnic background will demonstrate greater within group agreement regarding the various climates.

Hypothesis 4: Employees within the same age group will display higher climate strength on average than employees of combined age groups.

Hypothesis 5: Employees of the same gender will have greater climate strength on average than employees of both genders together.

Hypothesis 6: Employees within the same minority classification will have greater climate strength on average than employees of both minority and non-minority groups combined.

Organizational Tenure

Employees who entered in to the organization and were socialized around the same point in its history are likely to have a greater shared sense of the organization's environment and context. This is likely confounded with age, as older employees are the ones who would have the longer tenure, although a short tenure does not necessarily imply that an employee is younger as, particularly in recent years, switching organizations is a common practice. A distinction should also be made between an employee's tenure within their specific organization within a given industry, or their tenure working in that industry in general. Again, for some employees, it will be the same. However, employees who have worked for multiple organizations will have longer industry tenure than their respective organizational tenure. As described in the method section, the majority of respondents have worked for the federal government for more than 11 years, while fewer have been with their agencies for as long, suggesting that employees do tend to stay within the governmental sector for a long time. For this reason, climate strength will be compared to overall combined agency climates for employees with similar agency tenure and governmental tenure, separately. Amongst the tenure categories, I expect that respondents who have been with the agency or government the longest will have the strongest climates as was found in a study by Beus and colleagues (2010). These employees have had a longer time to adjust and adopt the values of the

organization, and have had longer to interact with their colleagues, leading to greater homogeneity and higher agreement on the shared meanings attributed to climate perceptions.

Hypothesis 7: Agencies comprised of employees with similar agency tenure will have greater within-agency climate strength on average than the entire agency climate with employees from varying tenures.

Hypothesis 8: Agencies comprised of employees with similar governmental tenure will on average have greater within-agency climate strength than the entire agency climate with employees from varying tenures.

Hypothesis 9: Agencies comprised of employees with the longest governmental or agency tenures will on average have higher climate strength than employees with shorter tenures.

Links to Outcomes

Organizational climate, as a key mediator between objective characteristics of the work environment, and employees' responses, is useful in influencing behavioral and attitudinal outcomes such as job satisfaction (Campbell, Dunnette, Lawler, & Weick, 1970). Satisfaction and climate items can sometimes appear very similar. However, they are generally distinguishable by the descriptiveness of climate items, and the evaluative nature of job satisfaction items (Ostroff et al., 2005; Schneider & Snyder, 1975). Positive relationships have been reported between various types of climates and job satisfaction (Dieterly & Schneider, 1974; James & Tetrick, 1986; Joyce & Slocum, 1982; Litwin & Stringer, 1968; Mathieu, Hoffman, & Farr, 1993; Pritchard & Karasick, 1972; Schneider

& Snyder, 1975), further demonstrating that climate and job satisfaction are distinct, but related constructs. The results of two meta-analyses further bolster the finding of the individual-level climate satisfaction relationship (Carr, Schmidt, Ford, & DeShon, 2003; Parker et al., 2003). Clearly, job satisfaction and climate have often been examined together empirically, especially at the individual level; however, few of these studies have taken climate strength in to account, as I plan to do in this dissertation.

Person-centered versus Organization-centered Climate

Litwin & Stringer (1966) found that adopting a democratic organizational climate resulted in higher work satisfaction than adopting an authoritarian or achieving structure; however, achieving climate was related to greater productivity. Along the same lines, Pritchard and Karasick (1973) found that high structure was most related to higher region-level satisfaction, whereas lower structure was most related to higher region-level effectiveness. Despite a strong relationship between job performance and job satisfaction, in regards to climate, what helps improve performance may not be what helps improve satisfaction, and, in some cases, might even be the opposite. Higher satisfaction has also previously been linked to organizations with climates that are supportive and friendly, reward employees well, and are more democratic (Pritchard & Karasick, 1973). All of these past studies suggest that facet-specific climates that are more concerned with making the work environment more pleasant for the employees, or person-centered climates, are more strongly related to satisfaction than organization-center climates such as those focused on productivity or service. As an affective assessment of the work environment, it is reasonable that employees would feel more satisfied when they are

treated more favorably, or when interventions are introduced that are intended to help make their jobs easier. Though there is evidence from studies of climate level suggesting this is the case, this question has never, to my knowledge, been tested in regards to the climate strength and satisfaction relationship. I expect that the type of facet-specific climate (person-centered or organization-centered) will moderate the relationship between climate level and satisfaction, such that the relationship will be stronger for person-centered climates. Since person-centered climates are expected to matter more to employees in terms of their satisfaction levels, it is expected that climate type will moderate the climate strength and satisfaction relationship, whereas climate strength will have a stronger relationship with satisfaction for person-centered climates than for organization-centered climates.

Hypothesis 10: The type of facet-specific climate will moderate the relationship between climate level and satisfaction.

Hypothesis 11: The type of facet-specific climate will moderate the relationship between climate strength and satisfaction.

The studies that have tested the climate strength hypothesis have found contradicting results. Some results find that climate strength moderates relationships between climate perceptions and various outcome variables like satisfaction (Colquitt et al., 2002; Gonzalez-Roma et al., 2002), whereas others do not (Dawson et al., 2008; Lindell & Brandt, 2000; Rafforty & Jimmieson, 2010; Schneider et al., 2002; Sowinski, 2008). As discussed earlier, the logic behind this hypothesis is sound in saying that a group's climate level will likely result in stronger outcomes if more of the members are

in agreement. If they agree, they are more likely to behave consistently within the group, and thus have a stronger relationship with outcomes. Support for the climate strength hypothesis is expected to be found in this study.

Hypothesis 12: Climate strength will moderate the relationship between facet-specific climates and individual job satisfaction at both the subagency and agency levels.

METHOD

I used archival data gathered by the U.S. Office of Personnel Management (OPM) during 2012. Specifically, data from the Federal Employee Viewpoint Survey (formerly called the Federal Human Capital Survey) were used, as it includes many climate-type items. This measure has been administered since 2002 at 2 year increments through 2012. This measure was chosen as it includes data from over one hundred thousand government employees per survey administration and includes agency and sub-agency membership information which allowed for the examination of possible subclimates. Data from 2004, 2006, 2008, 2010, 2011, and 2012 were publicly available for download from the OPM website. However, this investigation only used the largest and most recent data for 2012, and the 2011 data set for cross-validation purposes.

Sample

The sample included full-time, permanent employees of U.S. federal departments and agencies. The 2011 sample included 266,376 full-time federal employees. OPM drastically widened their sampling in 2012, with 677,094 full-time federal employees being surveyed. The reason behind the increase was that nearly all agencies made the FEVS a census where all employees were invited to participate rather than just randomly selecting employees from each agency to take the survey (OPM, 2012). Responses were weighted to account for some agencies using a census and some using random invitations (OPM, 2012). It should also be noted that there were both large agencies, with subagencies falling under them, and small/independent agencies which tended to include samples of less than 400 employees. These small/independent agencies were not further

broken down in to subagencies as many of them had fewer than 100 employees. There were 293 subagencies nested within 22 larger agencies in 2012.

In 2011, the sample was 47.6 percent female (117,567 employees), and in 2012 the sample included 44.1 percent females (277,838 employees). It should be noted that all percents are based on the total number who responded to these items, and that for some demographic items, there were large portions of respondents who failed to answer. The proportion female in the samples remained relatively stable between 2011 and 2012, with a little under half of the sample being female.

The breakdown of the supervisory status of employees in 2011 included 180,546 (72.7 percent) non-supervisors/team leaders, 41,762 (16.8 percent) supervisors, and 25,893 (10.4 percent) managers/executives. The 2012 sample included 504,204 (79.5 percent) nonsupervisors, 83,207 (13.1 percent) supervisors, and 46,472 (7.3 percent) managers and executives. As expected, the majority of respondents work in nonsupervisory or team leader positions with far fewer supervisors, and even fewer executives and managers. However, due to the magnitude of the sample, there was a sufficient number of managers and supervisors in 2012. The first couple of years included several racial categories to choose from in the demographics, but this was changed in later years to a minority or non-minority item. The 2011 sample included 83,003 (34.3 percent) ethnic minorities, and the 2012 sample included roughly the same proportion with 208,787 (34.0 percent) ethnic minorities.

The breakdown of governmental tenure, not including years of military service, for 2011 included 37,044 (15.1 percent) three years or less, 19,485 (7.9 percent) four to

five years, 41,838 (17.1 percent) six to ten years, 24,894 (10.1 percent) eleven to fourteen years, 27,242 (11.1 percent) fifteen to twenty years, and 95,383 (38.8 percent) more than twenty years. The 2012 sample included 102,023 (16.2 percent) three years or less, 62,859 (10 percent) four to five years, 121,911 (19.3 percent) six to ten years, 69,597 (11 percent) eleven to fourteen years, 59,235 (9.4 percent) fifteen to twenty years, and 216,002 (34.2 percent) more than twenty years tenure with the U.S. federal government. The majority of respondents reported working for the federal government for at least 11 years, with a large percentage having worked for the government for more than 20 years. The 2011 breakdown of agency tenure included 51,073 (20.8 percent) three years or less, 24,696 (10 percent) four to five years, 47,423 (19.3 percent) six to ten years, 53,610 (21.8 percent) eleven to twenty years, 69,324 (28.2 percent) more than twenty years with the same agency. In 2012, the agency tenure breakdown included 134,876 (21.4 percent) three years or less, 75,497 (12 percent) four to five years, 132,407 (21 percent) six to ten years, 126,950 (20.2 percent) eleven to twenty years, and 159,977 (25.4 percent) more than twenty years. The largest category was 20 years or longer, but unlike governmental tenure, was more variable amongst the employees.

In terms of age, the 2011 sample included 13,626 (5.6 percent) 29 and under, 38,384 (15.7 percent) 30 to 39, 71,723 (29.2 percent) 40 to 49, 89,474 (36.5 percent) 50 to 59, and 32,047 (13.1 percent) 60 and older. In 2012, the age breakdown included 36,193 (5.8 percent) 29 and under, 107,310 (17.2 percent) 30 to 39, 180,490 (28.9 percent) 40 to 49, 222,616 (35.6 percent) 50 to 59, and 77,968 (12.5 percent) 60 and

older. Most federal employees sampled fell in to the 40-49 and 50-59 age group categories.

In regards to work location, 104,472 (42.5 percent) and 228,537 (36.4 percent) of the 2011 and 2012 samples, respectively, worked at their agency headquarters, while the rest reported working in the field. Across years, the majority of respondents worked primarily in the field rather than at their agency headquarters.

Agencies and Subagencies

Respondents were categorized in terms of their federal agency and subagency, such that a larger number of subagencies were clearly nested under agencies. The specific agencies surveyed varied slightly across administrations. Not all agencies were further broken down in to subagencies. The 2012 sample included 79 agencies and 293 subagencies, while the 2011 sample included 78 agencies and 285 subagencies.

The survey was primarily administered online, although paper versions were available to employees who were unable to access the internet (OPM, 2012). If selected, employees were notified via e-mail about the survey. Employees were sent several reminder e-mails from both OPM, and internally from their own agencies and departments. The waves of data collection all occurred within a two to three month range, and the length of data collection within each agency ranged from four to eight weeks. The survey took about thirty minutes or less to complete, and employees were permitted to respond during work hours. A toll-free number and e-mail contact were provided to all participants in case of technical difficulties or questions regarding the survey overall, or specific survey items (OPM, 2012). Sampling varied between agencies such that certain

agencies randomly selected a certain number of employees to participate, while others chose to make it a census, where it was open to all employees. The survey response rates were 49 percent and 46 percent for 2011 and 2012 administrations, respectively (OPM, 2012).

Measures

The FEVS assesses employee perceptions of a variety of workplace conditions such as fairness in compensation and diversity practices. Its main purpose is to gauge how well the federal government is performing in terms of its workforce management. OPM also uses the survey to assess each agency individually, with the goal of helping management improve their handling of HR. The FEVS was the sole measure used in this study, and the items were first subjected to factor analysis. Survey content has changed slightly over the years, but there were 59 items which remained the same, including 11 satisfaction-type items, 41 climate-type items, and 7 affective-type items. These items are listed in Tables 1, 2, and 3. Several of the climate items in Table 2 had previously been reworded, thus *t*-tests were used to examine if there were meaningful differences with the commonly worded versus alternatively worded items. The three items with differences in wording are shown in column two of Table 2 (e.g., my supervisor/team leader provides me with constructive suggestions to improve my job performance versus Supervisor/team leaders provide employees with constructive suggestions to improve their job performance). It turned out there were, in fact significant mean differences, so these items, in addition to the affective items in Table 3, were excluded from all further analyses.

The FEVS is posited to assess seven dimensions including personal work experiences, recruitment, development and retention, performance culture, leadership, learning, job satisfaction, and satisfaction with benefits (OPM, 2012); however most of these dimensions were never tested empirically. In 2010 and 2011, OPM factor analyzed a set of 26 items expected to impact employee engagement. After an exploratory factor analysis, and several confirmatory analyses, they settled on a 15 item conditions of employee engagement index, which measured three subfactors relating to leadership, supervision, and intrinsic work experience. This was a good start to examining the factor structure of the FEVS; however, it only involved a fraction of the content items included on the survey. In order to examine climate strength in terms of specific climate dimensions, it was first necessary to determine, empirically, just what those climate dimensions were. Based on OPM's description of the survey, and by reading through the items, several climate dimensions were expected to be uncovered factor analytically including safety climate and justice climate. However, because the factor structure was likely to be more complex than that, factor analysis was warranted.

The FEVS also includes a number of satisfaction items, which served as the study outcome variables. These 11 items were first factor analyzed to shed light on just what types of satisfaction constructs were being measured, and whether or not they should all be combined in to a single composite.

Demographics

A number of demographic items including supervisory status (non-supervisor, supervisors, and executives), gender, age, location of employment (field, headquarters),

ethnicity/race, pay grade, turnover intention, agency tenure, and federal employment tenure were assessed during each wave.

Data Cleaning

The data were cleaned for careless and patterned responding by OPM. This involved eliminating ineligible respondents from the data file, and excluding incomplete responses. To be included in the final dataset, respondents had to answer at least 25% of the content items (e.g., 21 or more items in 2012).

Weighting

It was clear that certain demographic groups or employees were overrepresented in the sample. In addition, since some agencies employed random sampling of their employees, while others opted to make it a census survey, some agencies were over-represented in the data. To remedy the over and under representation, OPM statisticians weighted the cleaned data (OPM, 2012). The weighted public datasets were used in this investigation to better account for the differential sampling procedures. Base weights were computed for each sampled employee, where the weight was the reciprocal of an employee's probability of being selected for participation in the survey (OPM, 2012). These base rates were next adjusted to account for nonresponse within agency subgroups. Finally, OPM implemented procedures to match the distribution of the weighted sample to established federal employee population distributions so that the data reflected a more accurate picture of federal employees.

Analysis Plan

Factor structure. In order to uncover which facet-specific climates were being assessed by the FEVS, two potential factor models were compared using confirmatory factor analysis (CFA) on the 2012 data. One of the models was formed by simply reading through the list of climate items, and clustering those that conceptually seemed to measure the same constructs. The other model used the results of exploratory factor analysis (EFA) on the 2012 and 2011 data sets to inform the structure. Table 4 shows the initial conceptually-based model, and Table 5 shows the final factor structure that was derived from a combination of the EFA, and CFA. EFA was chosen instead of principal components analysis (PCA) as EFA is typically used to reveal the latent constructs underlying the data, so inferences can be made about the constructs, whereas PCA is primarily used for data reduction purposes (Bentler & Kano, 1990; Fabrigar, Wegener, MacCallum, & Strahan, 1999; Gorsuch, 1990). In terms of what goes in to an EFA, scholars recommend including at least three to five items suspected to tap each factor (MacCallum, Widaman, Zhang, & Hong, 1999; Velicer & Fava, 1998). MacCallum and colleagues (1999) also recommend avoiding items with very low communalities, which may occur when items that are unrelated to the topic are included, so satisfaction items were analyzed separately.

Another issue that is often discussed regarding EFA is the sample size necessary to detect the underlying factor structure. Various rules of thumb have been proposed over the years including Gorsuch's (1983) five participants to every one variable rule, and a ten to one ratio rule recommended by Nunnally (1978). These very different guidelines do not always account for certain aspects of the data however, making them somewhat

unreliable (MacCallum et al., 1999; Velicer & Fava, 1998). Statistical power formulas are viable alternatives in cases where formal hypotheses are formed regarding the underlying structure (MacCallum, Browne, & Sugawara, 1996). However, with such a large sample size as obtained in the FEVS, sample size was not an issue at the individual level.

Cross-validation. In order to cross-validate the best-fitting factor structure resulting from the CFA, the CFA was repeated on the 2011 individual sample.
All items measuring the resulting factors were examined for their internal consistency reliability, and formed into composites. Any mis-fitting single items were excluded from further analyses.

Although in a multilevel study, factor structure should typically be confirmed at levels of interest, the number of agencies and subagencies relative to the large number of variables in the model made it pointless to cross-validate across levels due to low statistical power.

The climate EFA included all items in Table 2, except the three with changed wording between years. These items were common to both the 2011 and 2012 administrations, and did not include affective items. Seven affective items were excluded from all analyses, as climate items are descriptive, rather than affective in nature. The seven excluded items are shown in Table 3.

The 2 models were tested using the SEM package in r, and compared in terms of fit. The conceptually-based model had poor fit, so I focused on improving the fit of the data-based model by examining fit statistics, examining scale alphas, and removing cross-loading and problematic items. This resulted in the seven scales shown in Table 5.

In terms of fit statistics, I followed the recommended guidelines for determining good fit provided by Hu and Bentler (1999). Specifically, I paid attention the standardized root mean squared residual (SRMR), combined with another index such as the Tucker-Lewis Index (TLI), Bollen's (1989) Fit index, the relative noncentrality index (RNI), comparative fit index (CFI), or root mean squared error of estimation (RMSEA). Table 6 shows several fit indices for the model tested in 2012, and cross-validation in 2011. For SRMR, the smaller the better, and Hu and Bentler (1999) recommended 0.08 or lower as indicating good fit. They recommend 0.06, and 0.95 or higher for TLI, Bollen's, CFI, and RNI. For both 2012 and 2011, the fit statistics were nearly identical. The SRMR was 0.043, which is below the 0.08 suggested cut-off. Furthermore, although CFI, RNI, TLI, and Bollen's index were around 0.90 and 0.91, which is a little below the cut-off for those indices, the RMSEA was around 0.06, which is right at the recommended cut-off. These statistics suggest good fit for the 7 factor model, and great replication in 2011.

It should be noted that the scree plot extracted in the EFA indicated there was one general factor. This is reflected in the higher individual-level scale intercorrelations shown in Table 7. Table 7 shows the individual-level scale intercorrelations, and scale alphas on the diagonal. Intercorrelations between climate level and strength are shown in Tables 8 and 9 at the subagency level, and Tables 10 and 11 for the agency level, respectively. Similar to the individual-level climate intercorrelations, the subagency and agency climate level intercorrelations were all quite high. Intercorrelations for strength were a bit smaller in comparison. Due to the large intercorrelations, and results of the scree plot, a single-factor CFA was tested on the 2012 sample only. Fit indices for this

model are also shown in Table 6. In comparison to the seven-factor model, the single-factor model yielded a large SRMR and RMSEA, and smaller TLI, CFI, RNI, and Bollen's index, indicating poorer fit. Therefore, the seven-factor model was used going forward, though the seven scales were generally expected to behave similarly due to the high intercorrelations.

Resulting Factors

Organizational Leadership Scale. The Organizational Leadership scale (alpha=0.935) is comprised of 6 items, which assess perceptions about how managers within the organization communicate, review progress, and behave fairly and ethically. These items refer to "managers" or "leaders" in general, as opposed to an individual employee's immediate supervisor (e.g., In my organization, leaders generate high levels of motivation and commitment in the workforce).

Job Significance Scale. The job significance scale (0.754) is a 4 item scale which examines the extent to which employees understand the importance of their jobs in relation to the organization's goals, are held accountable for the work they perform, and their talents are appropriately utilized and valued by the organization (e.g., The work I do is important).

Supervisor Performance Scale. This scale (alpha=0.913) is made up of four items. Items examined how well immediate supervisors help to develop their employees, respect their need for balance between home and work, and are able to respect and work well with people from various backgrounds (e.g., Discussions with my supervisor/team leader about my performance are worthwhile).

Merit-based Rewards Scale. This five-item scale is highly reliable (alpha=0.904), and includes items that ask about how poor performers are dealt with, and what types of behavior and performance are rewarded (e.g., Promotions in my work unit are based on merit).

Resource Availability Scale. These three items (alpha=0.735) measure perceptions about how well-resourced the organization is in terms of staffing, training, and other tools (e.g., I have enough information to do my job well).

Policy Scale. The policy scale (alpha=0.853) includes six items which gage the type of policies and practices followed within the organization. This includes safety procedures, integrity and ethical behavior, and diversity-related policies (e.g., my organization has prepared employees for potential security threats).

Team Scale. The four items comprising the team scale (alpha=0.811) assess perceptions of how well teams in the organization work together. This includes sharing job knowledge, cooperating, and performing well as a team (e.g., the people I work with cooperate to get the job done).

Underlying Structure of Satisfaction Items

In addition to examining facet-specific climates, satisfaction items were examined as outcome variables. The EFA and CFA steps outlined above were repeated with the satisfaction items alone to better understand exactly which aspects of satisfaction were being evaluated by all of these satisfaction items. The EFA and subsequent CFA resulted in a one-factor job satisfaction scale comprised of the eight items in Table 12. The scale had high internal consistency reliability of alpha=0.928, and included items asking about

specific areas (e.g., training, recognition, participation in decision making) as well as 2 items tapping global satisfaction of the job and organization. Several fit indices for both 2012, and the cross-validation on the 2011 sample are provided in Table 13. The SRMR value was 0.029, which is far below the recommended cut-off (Hu & Bentler, 1999). Although the RMSEA values were a bit high (around 0.11), the NRI, CFI, and Bollen's index were sufficient with values around 0.95. The satisfaction model showed sufficient fit, and replicated nicely on the 2011 dataset.

Based on the results of the factor analysis, I created facet-specific climate composites of items that tap each of the seven common factors. This was done at the subagency and agency aggregate levels. In order to justify aggregation, several agreement statistics were computed, as explained in the section on climate level below.

Hypothesis Testing

Hypothesis 1, which predicts that individuals nested within subagencies and agencies are more similar in terms of their climate perceptions than randomly selected individuals, and Hypothesis 2, which predicts that subagency membership matters more than agency membership, were tested by computing the ICC(1) values discussed below from the fully unconditional 3 level random intercept model. These models included either job satisfaction, or one of the seven facet-specific climates as the dependent variable with subagency and agency as the only predictors.

Climate Strength

Climate strength was measured as the standard deviations of the scores for each facet-specific climate scale averaged across individuals in subagencies or agencies.

Climate strength was computed regardless of the results of the ICC and RWG agreement statistics, because climate strength is purposefully measuring the degree of disagreement among individuals in intact groups, and it is undesirable to limit the examination of the variance by only looking at groups with high levels of agreement. However if all RWG values were excessively small, this would suggest there were no meaningful subagency or agency-level climates. Since there were both large and smaller agencies included in the FEVS sample, I anticipated that at the very least, the small agencies would yield larger RWGs.

Hypothesis 3, which predicted that subagencies and agencies with fewer employees would on average have stronger climates than those with more employees, was tested by correlating the subagency size (as operationalized by the number of employees within that subagency) with the climate strength variable for each separate facet-specific climate. Hypotheses 4 through 8, which predicted that groups similar on demographic variables including age, gender, minority status, agency and governmental tenure would have stronger climates than the overall agencies and subagencies, were tested by computing climate strength by subagency and demographic category. For instance, to test Hypothesis 5, regarding respondents within the same gender having a stronger subagency climate than would be expected for the full within agency climate strength, the climate strength was computed separately for all women in subagency X, and all men in subagency X. This was done for all subagencies. Next, within each subagency, the climate strengths for the demographic categories were compared to the overall subagency climate strength by computing the difference between the two values

(e.g., Orglead strength minus Women only Orglead strength). The difference values were then averaged across all subagencies to get an overall idea of which group's climate strength tended to be greater. This was repeated for each separate facet-specific climate. Hypothesis 9, which predicted that agencies comprised of employees with longer agency and governmental tenures would on average have stronger climates than agencies comprised of newer employees, was tested by creating a numeric variable for the tenure categories, and correlating this new variable with the climate strength variable across all subagencies.

Climate Level

In order to test all hypotheses involving climate level, or the mean climate in a unit, sufficient evidence of subagency and agency agreement had to be demonstrated. When it comes to choosing an index to justify aggregation, there are several options available. Interrater agreement indices demonstrate the absolute level of agreement amongst different judges within an aggregate unit of choice, regarding their climate ratings. A common indicator of within group agreement that can be computed for single or multiple items is the within group agreement coefficient, RWG (James, Demaree, & Wolf (1984. Le Breton and Senter (2008) recently reviewed several similar agreement indices including the AWG statistics introduced by Brown and Hauenstein (2005), and concluded that they all tend to converge on very similar results, and thus which one is used is more of a matter of personal preference. Because RWG is much more widely accepted and familiar to most researchers, it was used in this study to justify aggregating to the subagency and agency levels. These RWG indices compare the observed variance

to the variance that would be expected if all raters (or in this case, individual employees) provided random ratings. Several variations of the RWG have been introduced, including RWG(j), which examines within group agreement of several items at once (James et al., 1984). As there were multiple items tapping each underlying construct, the RWG(j) formula was used in this study. Since RWG must examine the random error variance, a null distribution must be estimated. In most cases, researchers use the uniform rectangular null distribution (Schriesheim et al., 2001) because it is more straightforward to calculate the error variance value, and it tends to yield larger RWG values compared to other null distributions. However, this distribution fails to account for response biases such as severity and central tendency. These rater biases have been found to be extremely pervasive, so it is unlikely that a sample would be free of any response bias (Baltes & Parker, 2000; Borman, 1991), so researchers should try using several different null distributions (James et al., 1984). In line with these recommendations, three null distributions were used to compute RWG including the uniform rectangular null distribution, and the slightly, and moderately skewed distributions, which account for leniency and severity biases (James et al., 1984). Although caution should be taken when using rules of thumb (e.g., LeBreton & Senter, 2008), an RWG value of 0.7 or greater is often used to give the green light for aggregation (Lance, Butts, & Michels, 2006; LeBreton et al., 2003). LeBreton and Senter (2008) provide some less dichotomous guidelines to aid in interpreting RWG, which were useful in determining if aggregation was justified. Smaller sample sizes and fewer items tapping each construct have been found to attenuate RWG values (James et al., 1984; Kozlowski & Hattrup, 1992).

Although some of the factors in the FEVS were measured by only a couple observed variables, larger sample sizes have been found to compensate for fewer items, and increase RWG values when the true value is non-zero (Cohen, Doveh, & Eick, 2001). This is because the Spearman-Brown prophecy has been demonstrated to apply to agreement statistics including RWG (LeBreton et al., 2005).

A "typical" RWG value has not been reported for the climate literature. However, they appear to frequently fall in to the acceptable range (e.g., 0.69-0.85, 0.67-0.86 in Patterson et al., 2005 and Patterson et al., 2004, respectively). RWG was computed separately for each climate factor identified to determine whether or not aggregation to the group level mean was warranted. For those groups with an acceptable RWG, facet-specific climate composite scores were averaged to the subagency and agency levels and labeled climate level.

Interrater reliability indices show how consistently individuals within a given aggregate unit have similar rankings of climate dimensions relative to other individuals in the unit (Schneider et al., 2013). An index that is commonly used in hierarchical linear modeling (HLM) studies is the intraclass correlation (ICC(1)), which is a ratio of the between unit variation to the total variation. As asserted by LeBreton and Senter (2008), ICC(1) gets at both interrater agreement and reliability. ICC(1) was computed as further justification that the nested nature of the FEVS dataset matters, and to test Hypothesis 10. The ICC(1) values were interpreted using the set of standards for interpreting ICC(1) established by LeBreton and Senter (2008) with 0.01 as small, 0.10 medium, and 0.25 as large. James (1982) reported that typical ICC values in the climate literature tend to range

between 0.00 and 0.50 with a median of 0.12, indicating that most ICCs found in climate studies tend to be quite small. Even if small ICC values are found, scholars recommend that particularly for samples with large group sizes, such as those found in the FEVS, data with small ICC values should be treated as dependent (Pollack, 1998). In particular, ignoring dependence within data can lead to lower standard errors, and overly liberal significance tests (Kenny & Judd, 1986). Barcikowski (1981), for example, demonstrated that an ICC of 0.05, paired with what they considered large group sizes of 25, resulted in a type I error rate of 0.19. The group sizes involved in the FEVS data are much larger, so it would likely be far more detrimental to ignore even this small amount of interdependence in the data. Furthermore, in the climate literature, climate measures with very small ICC(1) values (e.g., 0.02) have still been found to demonstrate relationships with outcomes in expected directions (e.g., Anderson & West, 1998), suggesting that there truly are distinct and meaningful climates present.

Similarly, ICC(2), which is an index of the reliability of unit-level means, as being different from other unit-level means, is sometimes reported by climate researchers, although it is a function of unit size, and is thus interpreted like a standard reliability statistic (LeBreton & Sentor, 2008; James 1982), and is not sufficient to justify aggregation. ICC(2) was not computed as it has been found to be directly impacted by larger group sizes (James, 1982), and thus was likely to be upwardly biased in the FEVS data.

Hypotheses 10 and 11 predicted that the type of facet-specific climate would moderate relationships between climate strength and satisfaction, and climate level and

satisfaction. Both of these hypotheses were tested using hierarchical linear modeling, using a three-level model with individuals nested within subagencies, nested within agencies. The outcome was individual job satisfaction, and predictors included the demographics shown to display differences by climate strength, as well as both the level and strength variables for all seven facet-specific climates. Hypothesis 12, which predicted that climate strength would moderate relationships between facet-specific climate levels and individual-level satisfaction, was tested using hierarchical linear modeling. The models were similar to the one used to test Hypotheses 10 and 11, but they were separated by facet-specific climate, and each model also included an interaction term between the specific climate level and strength.

RESULTS

Descriptive statistics for facet-specific climate level and strength are shown in Tables 14 and 15 for the subagency level, and 16 and 17 for the agency level. It should be noted that the mean strength values should be interpreted negatively, where larger values indicate greater variance, and thus weaker climates. Both subagencies and agencies tended to be strongest on team and job significance climates, and weakest on organizational leadership, supervisor performance, and merit-based reward climates. In terms of climate level, both subagencies and agencies tended to be highest on team and job significance climates, and lowest on merit-based reward climates.

Hypotheses 1 and 2: Multilevel Data

Hypothesis 1 predicted that the nested nature of the data would matter, such that employees nested within subagencies and agencies would be more similar in terms of their climate perceptions than would randomly selected employees. The results of testing the fully unconditional three-level models with the different facet-specific climates as outcomes are shown in Table 18. The ICC(1) values are small, but nonzero, and as discussed earlier, research has demonstrated that even slight indications of nestedness could lead to major type II errors, and thus should be modelled appropriately. The small ICC(1) values provided evidence supporting Hypothesis 1: that the nesting of individuals within subagencies and subagencies within agencies matters. The smaller ICC(1) was probably the result of the large agency and subagency sizes, which make it more difficult to establish strong climates, and low within-group variance.

Hypothesis 2 predicted that subagency membership would matter more than agency membership in predicting job satisfaction at the individual level. An ICC(1) of 0.027 for subagencies and 0.012 for agencies. This means that 2.7 percent of the variance in individual-level job satisfaction can be explained by the between-subagency mean variation, and 1.2 percent of the variance in individual-level job satisfaction can be explained by between-agency variance. These values provided some support for Hypothesis 2. That is, as expected, the subagency group membership had a stronger impact on individual-level job satisfaction than did agency membership, although the difference was small. A similar pattern was observed for all facet-specific climates as outcomes. For this reason, Hypotheses 10, 11, and 12 were tested at the subagency level.

Within-Group Agreement

In addition to the ICC(1), the within-group agreement for subagencies and agencies must be sufficient in order to justify aggregation to these levels. Tables 19 and 20 provide the mean, standard deviation, minimum, maximum, and median RWG values for the seven facet-specific climates, and job satisfaction scales. These descriptive statistics are provided using the uniform rectangular distribution (which is widely used, but not realistic), as well as using a slight and moderately skewed distribution, which more accurately reflects the data. Subagency and agency estimates were generally similar, and tended to be highest and most compliant to the 0.7 rule of thumb, for the uniform distribution, more variable, but typically non-zero for the slightly skewed distribution, and near zero for the moderately skewed distribution. The extraordinarily large agencies and subagencies included in this study are likely the reason for the lower

within-group agreement estimates, but as the slightly skewed distribution was typically non-zero, aggregation to both subagency and agency levels was deemed acceptable. Distributions of the facet-specific climate variables were also examined in case of bimodal distributions due to strong subclimates, but this was in general not an issue. Subclimates likely do exist, however they probably weren't strong enough subclimates to overly convolute the findings.

Hypothesis 3: Agency and Subagency Size

Hypothesis 3 predicted that agencies and subagencies with fewer employees would have stronger climates on average than agencies and subagencies with more employees. Table 21 shows the correlations between subagency and agency size and the climate strength for the various facet-specific agency climates. Negative correlations indicate that larger agencies tend to have stronger climates, and vice versa. None of the correlations were significant, and those that were greater than 0.1 were negative. The strongest correlations were for job significance (r=-0.151) and policy (r=-0.158). This may have something to do with the nature of these specific types of climates.

As with agency size, none of the correlations were significant, and the only coefficient that exceeded 0.1 was negative. Similar to agency size, there was a sizeable (although not statistically significant) correlation with job significance (r=-0.101, while all other correlations fell near 0.

It is possible that there was a ceiling effect responsible for the null results, where at a certain agency or subagency size, there is a weak climate, and it doesn't matter if the agency has 7000 or 30,000 employees. TO test for this type of effect, I examined the

distribution of agency and subagency sizes, and selected an upper limit, at which any larger agencies or subagencies were all given the same value. The agency and subagency size variable was still continuous, up to that limit. For agency and subagency size, this limit was 1400. About 67.1, and 72.6 percent of values were below this point for agencies and subagencies, respectively, so there was not excessive range restriction, yet it seemed reasonable that larger agencies and subagencies would make it difficult to develop a strong climate. Table 21 also shows the results of this analysis for agency and subagency size. Contrary to my expectations, most relationships were negative, suggesting that larger agencies tend to have small standard deviations for their climate perceptions, and therefore stronger climates. Despite this trend, only one of the relationships was significant at the $p < 0.05$ level, and that was a -0.261 for policy climate. Job significance climate strength also had a sizeable relationship with agency size (-0.188). With the exception of a non-significant relationship between supervisor performance climate and subagency size, all relationships were negative. This follows the pattern found for the agency size relationships; however, the magnitudes differed quite a bit. The strongest relationships were found for organizational leadership climate (-0.145), job significance climate (-0.226), and merit-based reward climate (-0.170). Unlike its relationships with agency size, policy climate strength yielded a small, nonsignificant correlation (-0.077).

A second way of dealing with this same issue was to create categories for an ordinal agency and subagency size variable, and correlating this new variable with the facet-specific climate strengths. The categories did not contain equal intervals, but made conceptual sense, and seemed reasonable given the distribution of values. For agency

size, the categories were 1, which contained 100 and below (31.6 percentile), 2 included More than 100 to 600 (55.7 percentile), 3 contained 3 included more than 600 to 1500 (67.1 percentile), and 4 included everything greater than 1400. The results of this analysis are also shown in Table 21. The relationships were very similar to those found using a ceiling. Once again, policy was the only significant relationship (-0.277), with job significance climate strength being the next largest (-0.152).

The categories for subagency size were 1, which included values 300 and under (30.8 percentile), 2, which included values greater than 300 and less than or equal to 700 (56.5 percentile), 3, which contained values above 700 and less than nor equal to 1400 (72.3 percentile), and 4, which included all values greater than 1400. In line with the findings for the categorical variable of agency size, findings were very similar to those found in the ceiling analysis. Again, the strongest correlations were found for organization leadership climate strength (-0.131), job significance climate strength (-0.209), and merit-based reward climate strength (-0.159). All other relationships were close to zero, but tended to be slightly negative.

All of the above analyses suggest that Hypothesis 3 should be rejected. Relationships between agency and subagency size and the different facet-specific climate strengths was always nearly zero, or negative. There were no instances where smaller agencies and subagencies tended to have stronger climates, or larger agencies and subagencies had weaker climates.

Hypothesis 4: Age

Hypothesis 4 predicted that employees within the same age bracket would have strong climates on average than employees of combined age brackets. Table 22 shows the sample size, minimum, maximum, median, mean, standard deviation, standard error, and 95 percent confidence intervals of the difference scores between the specific age category strength and the overall agency strength. Positive values indicate that the specific age category had a stronger facet-specific climate than the overall agency strength. In general, differences were quite small. However, there were several mean distance values that were above 0.1, which is about one tenth of a standard deviation. There were also some values between 0.05 and 0.1, which are worth mentioning as well. The 29 and under group was the only group that tended to differ the most from the overall agency group. This group had a stronger organizational leader climate (mean distance=0.098 95 percent conf interval=0.054 to 0.142), supervisor performance climate (mean=0.121, conf interval=0.065 to 0.178), merit-based reward climate (mean=0.059, conf interval=0.15 to 0.104), resource availability climate (mean=0.102, conf interval=0.059 to 0.145), policy (mean=0.107, conf interval=0.063 to 0.150), and team (mean=0.056, conf interval=0.19 to 0.093). No other age groups demonstrated major differences from the overall agency in terms of climate strength. Perhaps this younger 29 and under group has the strongest climate because they are relatively new to the workforce compared to their older counterparts, and thus have different expectations and perceptions of the environment.

Table 23 shows the results for subagency facet-specific climates by age group. Results were similar to agency climate strength, with most of the differences appearing in the 29 and under age group. This group had a slightly stronger subagency facet-specific

climate for organization leaders (mean=0.075, conf interval=0.050 to 0.100), supervisor performance (mean=0.091, conf interval=0.067 to 0.116), merit-based reward climate (mean=0.047, conf interval=0.022 to 0.072), resource availability climate (mean=0.069, conf interval=0.048 to 0.090), and policy climate (mean=0.082, conf interval=0.060 to 0.104). Similar to the agency analysis, job significance did not show any differences for any of the age groups. Unlike the agency analysis, there were no differences for team climate for subagency climate strength. The 60 and older group had a small mean distance of 0.043 for supervisor performance, where they had a slightly stronger climate than the overall subagency group, but this was the largest effect across any of the other age groups. These results provide partial support for Hypothesis 4, as climate strengths were higher on average for just the 29 and under group, as compared to the overall subagency and agency climate strengths.

Hypothesis 5: Gender

Hypothesis 5 predicted that employees of the same gender would have stronger climates on average than employees of both genders combined. Table 24 includes the descriptive statistics for the distance between the male and female facet-specific climate strengths and that of the overall agency. All of the mean distance values were near 0, suggesting no differences. Table 25 displays the descriptives for the specific gender groups compared to their overall subagency climate strengths. There were no major differences here either. These results lead to the rejection of Hypothesis 5, as gender does not appear to make groups more homogenous in terms of their facet-specific climate perceptions.

Hypothesis 6: Minority Status

Hypothesis 6 predicted that employees within the same minority classification would have stronger climates on average than employees of both minority and nonminority groups combined. Table 26 includes the descriptive statistics for the difference in climate strengths between the minority classification groups and overall agencies. Most differences were very near to 0, with the most notable difference occurring in supervisor performance climate strength, such that minority groups within agencies actually had weaker climates than the overall agency climate strengths (mean=-0.057, conf interval=-0.071 to -0.044). Descriptives for subagency climate strength differences by minority status are shown in Table 27. These results are nearly identical to those found in the agency analysis, with the only notable difference being for minority group on supervisor performance climate strength (mean=-0.059, conf interval=-0.067 to -0.051). Again, the negative sign indicates that the minority group had a weaker supervisor performance climate than the overall subagency on average. Both the agency and subagency findings lead to the rejection of Hypothesis 6, as minority status did not make groups more homogeneous in terms of climate perceptions.

Hypothesis 7: Agency Tenure

Hypothesis 7 predicted that agencies comprised of employees with similar agency tenures would have stronger climates on average than agencies comprised of employees from all tenures. Table 28 contains descriptive statistics for the distance between climate strengths by agency tenure compared to overall agency. Most distance values were near 0, except for the up to 3 years group, which had stronger policy climate than the overall

agency on average (mean=0.063, conf interval=0.046 to 0.079). Similarly, Table 29 shows the descriptive statistics for agency tenure compared to overall subagency climate strength. The results showed little to no difference, except for the up to 3 years tenure category, which had a stronger policy climate on average than the overall subagency (mean=0.048, conf interval=0.037 to 0.059). These results point to limited support for Hypothesis 7.

Hypothesis 8: Federal Tenure

Hypothesis 8 predicted that agencies comprised of employees with similar governmental tenure would on average have greater within-agency climate strength than the entire agency climate with employees from varying tenures. Descriptives for the distance between climate strengths for specific federal tenure categories compared to overall agency climates are shown in Table 30. The largest differences were primarily for the up to 3 years tenure group, which always yielded stronger climates. Specifically, the up to 3 years group had stronger organizational leader climate (mean=0.096, conf interval=0.066 to 0.127), supervisor performance climate (mean=0.094, conf interval=0.068 to 0.120), merit-based reward climate (mean=0.050, conf interval=0.025 to 0.075), resource climate (mean=0.064, conf interval=0.035 to 0.094), and policy climate (mean=0.105, conf interval=0.083 to 0.127). The 4 to 5 years tenure group had a stronger climate on average than the overall agency on policy climate (mean=0.067, conf interval=0.025 to 0.108).

Table 31 displays the descriptive statistics for the difference between climate strengths between federal tenure categories and overall subagencies. Again, all of the

larger differences occurred for those who had been with the federal government for up to 3 years. Employees in the shortest federal government tenure category had slightly stronger organizational leader climate (mean=0.075, conf interval=0.062 to 0.087), supervisor performance climate (mean=0.079, conf interval=0.065 to 0.092), merit-based reward climate (mean=0.049, conf interval=0.038 to 0.060), resource availability climate (mean=0.062, conf interval=0.051 to 0.073), and policy climate (mean=0.087 conf interval=0.075 to 0.098). These results provide partial support for Hypothesis 8.

Hypothesis 9: Linear Relationship between Strength and Tenure

Hypothesis 9 predicted that agencies comprised of employees with the longest governmental or agency tenures would on average have higher climate strength than those comprised of employees with shorter tenures. Table 32 includes the correlations between facet-specific climate strengths and agency and federal governmental tenures. Most correlations were quite small and all were nonsignificant. However, organizational leadership climate strength had the largest relationship with both agency and federal tenure (0.123, and 0.121, respectively). These relationships are small, but suggest that employees who have spent more time in both the federal government, and their own specific agency tend to have more agreement surrounding their perceptions of organizational leadership.

Table 33 shows the correlations for subagency facet-specific climate strength and tenure. There were several moderate-sized and significant relationships all between agency tenure and climate strength. Longer agency tenure was linked to strong organizational leadership climate (-0.21), supervisor performance climate (-0.168), merit-

based reward climate (-0.212), resource availability climate (-0.205), and team climate (-0.235). Federal tenure typically yielded a near zero relationship with subagency climate strength. These results provide partial support for Hypothesis 9.

Hypotheses 10 and 11: Climate Type as a Moderator

These two hypotheses predicted that the type of facet-specific climate would moderate the relationships between climate level and satisfaction, and climate strength and satisfaction, respectively. Out of the seven facet-specific climate scales that resulted from the factor analysis, the majority were person-centered climates. The team climate was the only one that was totally organization-centered, however the individual items comprising each scale created different degrees of person-centering and organization-centering. For instance, the organizational leadership climate scale included an item referring to the honesty and integrity of the organization's leaders. On the other hand, it also included several items about how well leaders communicate the goals and priorities of the organization. This scale was more organization-centered than the job significance, policy, supervisor performance, and merit-based reward climates, which mostly refer to the treatment of employees themselves. Resource climate was another scale that was partially person-centered, and partially organization-centered. Since the categorization of the resulting climate dimensions did not cleanly fall in to either person-centered or organization-centered, I compared the most person-centered climates (job significance, supervisor performance, merit-based rewards, and policy) to the split climates (Organizational leadership and resource availability), and the most organization-centered climate, which was team climate. Table 34 shows the standardized regression coefficients

for the seven facet-specific subagency climate levels on individual-level job satisfaction after controlling for the effects of subagency climate strength, subagency size, and individual age, federal and agency tenure. The subagency size, age, and tenure variables were included as controls since they demonstrated some impact on climate strength. Subagency size was treated as a continuous variable, while age, federal tenure, and agency tenure were coded as dummy variables where 0 indicated the lowest age or tenure group, and 1 indicated employees in all other age and tenure categories. This was done because the only major differences in strength were found for the lowest age and tenure category. All predictors were standardized for ease of interpretation, except for the three dummy variables. The three-level models included a random effect of agency and subagency membership. Climate and strength were examined at the subagency level since the results of Hypothesis 2 indicated that subagencies accounted for more of the variance in individual satisfaction than did agency. The standardized coefficients are provided in Tables 34 and 35 for level and strength, respectively. After controlling for subagency size, age, and tenure, the coefficients for climate level and strength were quite small. In addition, different facet-specific climates were more and less predictive. For instance, team climate level, as expected, had the smallest significant standardized regression coefficient (-0.018), meaning it was the least predictive of satisfaction, and higher team climate actually hurt satisfaction. The partially person-centered, partially organization-centered climate levels were not less predictive of satisfaction than the more person-centered climates. In fact, organizational leadership climate level was the most predictive of satisfaction (0.086). These results suggest only partial support for Hypothesis 10.

Table 35 shows the standardized regression coefficients for the facet-specific climate strength variables. Strength had less predictive power than level, but there were still some noticeable patterns. Team climate strength had a nonsignificant, near zero relationship to satisfaction as expected, but so did several of the other climate strength variables. Resource availability climate strength was the most strongly related to satisfaction, where lower standard deviations, or stronger climates, were linked to higher satisfaction. The only other significant coefficient was merit-based reward climate, which was positive, suggesting a relationship in the opposite direction than expected. These results provided only limited support for Hypothesis 11.

Hypothesis 12: The Climate Strength Hypothesis

The climate strength hypothesis was tested separately for each of the 7 facet-specific climates using a three-level nested mixed effects model predicting individual-level job satisfaction. The same control variables included to test Hypotheses 10 and 11 were included in these models. Models with and without the moderator variable were compared using both the Akaike Information Criterion (AIC), and a likelihood ratio test. When comparing models, smaller AIC values indicate better fit. Table 36 shows the AIC, standardized regression coefficients, *t*-values, and *p*-values for the different facet-specific climates. For organizational leadership climate, the interaction term was not significant, and there was no significant difference between models. The main effect of climate level, however, was a significant predictor of individual satisfaction.

In terms of job significance climate, the interaction term was significant, as was the likelihood ratio (8.884, $p < .01$), and the main effect of level. To better understand the

interaction, predicted satisfaction values were computed for instances of low climate level and strength, low level and high strength, high level and high strength, and high level and low strength. As the variables were standardized, I used 1 and -1 to show high and low scores as one standard deviation above and below the mean of 0. These numbers were plugged in to the standardized regression equations to get the predicted values. As the strength variable includes standard deviations, higher scores actually represent more variability, and weaker climates, so directions were switched for the strength variable. Results of this analysis are shown in Table 37. Interestingly, higher climate level was always better for satisfaction, but higher climate strength was slightly beneficial only when climate level was low. When job significance climate level was high, weaker climate strength was more strongly linked to higher satisfaction.

The likelihood ratio comparing the supervisor performance models was significant (6.737, $p < .01$). The climate level main effect was significant, but strength was not. The same predicted satisfaction values were computed using the obtained betas. These results are shown in Table 37. Higher climate level was always better in terms of satisfaction, but stronger climates were only beneficial when level was high. When level was low, weaker climates were more linked to higher satisfaction.

Again, the main effect of climate level was significant in both models for merit-based reward climate, but strength was not a significant predictor of satisfaction. The interaction term was significant, as was the likelihood ratio (4.198, $p < .05$). The predicted values of high and low level and strength are shown in Table 37. The pattern here was the same as that found for job significance climate, where higher climate

strength was beneficial to satisfaction only when climate level was low. When climate level was high, weaker climates were slightly better for satisfaction.

For resource-availability climate, the interaction term was significant, as well as both main effects for strength and level in both models. In addition the likelihood ratio was significant (4.864, $p < .05$). The general pattern here was that higher climate level and strength were better for satisfaction.

The interaction for policy climate was nonsignificant, but the main effects for strength and level were significant in both models. In regards to team climate, the interaction term was nonsignificant, and there was no real change in AIC. The main effect for level was significant in both models. It appears that the type of facet-specific climate determines whether or not climate strength moderates the level and satisfaction relationship, providing partial support for Hypothesis 12.

DISCUSSION

The results of this investigation of climate strength generally provided mixed support for my hypotheses. The most likely reason for this is the large organizational size of the agencies and subagencies examined. As mentioned previously, no study to date has taken such a macro level view of these types of climate strength questions, so it is entirely likely that different patterns occur in the presence of larger organizational units. Though, I concluded that the nested nature of the data was important, such that data should be aggregated to different levels, only a small proportion of the variance in satisfaction was explained by agency and subagency membership. Even so, the results support Hypothesis 2 because subagency membership did indeed explain more of the variance in the outcome than did agency membership. Subagencies are smaller units, in which individual perceptions have greater weight than within the larger agency, thus it makes sense that membership would explain more of individual satisfaction. Organizational leaders seeking to change satisfaction should therefore focus on subagency or other smaller groups of employees. Climate perceptions aggregated to the smaller group level should be examined when looking for possible explanations for lower level of satisfaction, and campaigns to improve satisfaction should be tailored to these smaller groups for most impact.

The demographics expected to be antecedents of climate strength provided mixed findings. In terms of unit size, the results tell an opposite story than was expected. Instead of larger units having weaker climates, findings suggest that larger units tend to have stronger climates. A possible explanation for these results is that leaders in larger

organizations take a more proactive approach to creating strong brands and strong climates in order to better influence all employees from the top down. Due to the greater number of employees, executive boards likely make more of an effort to streamline communications, and put organization-wide standards and policies that are uniformly applied in to place to prevent chaos. This was especially true for the agency climates for policy and job significance, and the subagency climates of job significance, organizational leadership, and merit-based reward climate. Interestingly these are all facet-specific climate types that are more linked to the organization as a whole as opposed to being more variable at smaller unit levels. Team, resource availability, and supervisor performance climates all depend on smaller work units, and could differ quite a bit depending on the group, while things like policy and organization leadership climates are more static and centralized, and thus are linked to greater organizational size.

It also seems there is a ceiling effect on unit size, such that once an organization reaches a certain size (e.g., 1400 employees) it no longer matters how much larger it gets; the climate strength tends to remain the same. In more practical terms, once an organization or unit reaches a large enough size, more rigid policies and practices are necessary to keep the unit moving as a smoothly functioning machine. The uniformly implemented practices result in greater agreement about the climate, and thus greater strength. After that critical size, organizations don't appear to become increasingly uniform regarding their practices, so in essence, the climate strength plateaus.

When considering climate strength within homogeneous demographic groups, only specific groups and certain kinds of characteristics relate to within-group climate

strength at the macro level. For different age groups, the only group that tends to have its own climate strength higher than the overall unit, is the 29 and younger aged employees. These employees are newer to the workforce, and carry with them stronger, and more distinct perceptions of what the work world is like. These strong perceptions are learned from school, the media, or their families, and have not yet been tainted by much experience, so they tend to have more homogeneous perceptions, with the exception of job significance perceptions. After employees have been working for a while, they have had more time to acquire different types of experiences, and their perceptions become more varied based on their own unique experiences. It seems as though age group become more and more similar after age 30, hence, within the older age groups, the climate strength is more varied than it is for the 29 and under group, and it is very similar to the unit climate strength as a whole.

Neither the gender groups nor minority and nonminority groups had greater within-group climate strength than the overall unit as a whole. This likely means that there are other more salient characteristics of employees that lead to more homogeneous groups with stronger climates than simply their gender classification. For minority status, the FEVS only categorizes employees as either minorities or not. This is a very vague category, and I suspect that there's probably greater variability in climate perceptions amongst the "minority" group, since it includes people of all different types of ethnic minorities. In fact, the only notable difference from the overall unit climate strength was for the minority group on supervisor performance climate, where the minority group

actually had weaker climate strength than the overall group of minorities and nonminority's combined.

The findings for agency and federal tenure were similar to those obtained for employee age in that the newest group, up to 3 years, was the only group with stronger climates than the overall unit as a whole. Unlike the age findings, this difference was only for a few of the facet-specific climates. More specifically, for agency tenure, the up to 3 years tenure group had stronger agency and subagency policy climate than the overall units. This is somewhat counterintuitive as it would seem more reasonable for there to be greater variability amongst the policy climate for new employees who have not had the chance to really observe and understand the policies, whereas those who have been with the agency for longer will have been more used to the policies, and thus have a stronger climate. On the other hand, it is possible that newer employees are more familiar with what the official policies are as they've recently been onboarded and it is fresh in their minds, whereas the employees with longer tenure might not remember policies as well, or their perceptions are more variable because they know the official policies are not actually implemented uniformly, and so their climate perceptions report on the actual use of policies rather than the official policies.

The picture is a little different for federal tenure since many of these employees have worked with the federal government for many years, yet have switched between multiple agencies. That is probably why these findings are closer to those found for age. Again, the up to 3 years group had stronger climates on several dimensions, likely due to being new, and holding fresh perceptions that have not yet been changed by experience

within the federal government. These results also provide evidence that employee perceptions are impacted by working with the federal government sector in general, and not just their specific agencies. If the federal government sector in general did not impact perceptions, there would probably be strength differences in more areas than just policy for agency tenure. Instead, since so many people who have already been working in the federal government sector switch between agencies, the up to 3 years group does not have a stronger climate for most dimensions.

When actually examining the link between climate strength and tenure, at the agency level, most relationships are near zero, but agencies with longer average agency and federal tenures tend to have stronger organizational leadership climate. This is probably because these employees have had the most time to observe the leadership, and talk to their peers in order to form their perceptions. On the subagency side, this same pattern was found for agency tenure and strength for organizational leadership, supervisor performance, merit-based reward, resource availability, and team climates. Once again, climates like team, resource availability, and supervisor performance are more related to smaller groups, so it makes sense that these relationships would show up for subagency and not for agency. Federal tenure tended to yield near zero relationships with subagency climate strength.

Future research should look at the interaction between these demographic variables to see if various combinations of these traits (e.g., females aged 29 and under of a certain ethnic background), have greater within group climate strength than the unit as a whole. Relative importance of different aspects of people's identities should also be

explored in order to design appropriate interventions to improves satisfaction and facilitate changes in climate strengths. In addition, climate level and strength should always be examined by these different demographic groups in order to ensure that specific groups are not having a significantly different experience of the climate than other groups. People of differing identities tend to naturally experience the world differently, but drastically differing perceptions or widespread disagreement regarding fairness and diversity policies could suggest that bias or exclusion could be present. Future research should also take a group composition lens to these questions rather than examining homogeneous groups separately. For instance, groups with differing male to female ratios or proportions of various ethnic minorities can be examined and compared in terms of their climate levels and strengths.

When considering the type of facet-specific climate as a potential moderator of the relationship with climate level and strength, person-centered versus organization-centered is not usually black and white. Most scales on the FEVS are at least a little person-centered, with exception of team climate. It is possible that person-centered items present in a scale tend to be more dominant than more organization-centered items. If the only totally organization-centered type of climate, team, was alone compared to the other more person-centered climate levels, there is a clear difference as team has the smallest coefficient between both level and strength and satisfaction. Perhaps the simple inclusion of at least one person-centered climate item in a scale drives the stronger relationships with satisfaction. Still, team climate appears to be the least related to subagency-level satisfaction, possibly because it does not really address the well-being of employees.

Higher levels of organizational leadership climate are linked to higher satisfaction, even though it is not the most person-centered type of climate. The same is true for resource availability climate strength being most strongly linked to satisfaction. These findings suggest there may be other moderators at work here, such as a balance of person-centered climate and organizational support, or a reasonable workload, which can relate to both organizational leadership and resource availability. Additional research on the moderating effects of various climate types is needed to help organization leaders design and adopt optimal types of climates that match their strategy.

Only partial support was found for the climate strength hypothesis, and it was primarily in the incorrect direction, except for supervisor performance climate. For the other climates with a significant interaction term, higher satisfaction resulted from higher climate strength only when level was low, and either the opposite effect, or null effect occurred when level was high. This generally seems to suggest that when unit sizes are large, climate level matters more for satisfaction, and greater strength only seems to matter when level is low.

It is important to mention that group homogeneity can have a small impact on the outcome of satisfaction, but that is just one instance. Group diversity has been known to be extremely beneficial in a host of desirable outcomes such as creativity and problem solving (e.g. Stahl, Maznevski, Voigt, & Jonsen, 2010). Homogeneous groups are not inherently good, but certain kinds of demographic homogeneity is linked to climate strength and satisfaction when level is low. After the satisfaction analyses were run, I combined the excluded affective items with the satisfaction items in an EFA to see

if they could serve as an additional outcome variable. The items all clustered together with an alpha of .95 suggesting that the affective items in Table 3 basically assessed the general satisfaction outcome, and would add little to the psychometric benefits of the scale.

Study Weaknesses

There are a number of aspects of the sample and study which were not ideal. First, although the sample sizes of the subagencies and agencies were quite large, the number of subagencies and agencies was more limited. It would have been desirable to confirm the factor structure found at the individual level on the subagency or agency level data, but considering the number of variables that were included in the model, there would not have been sufficient statistical power to do so. Second, the minority variable lumps all ethnic minority groups together, creating a very heterogeneous group. A variable with more specific homogeneous ethnic groups would help to better answer the question of whether specific ethnic minority groups tend to have higher climate strengths than the overall units at large. The limitation of the facet-specific climates measured was another drawback to the study. There was only one main organization-centered climate, and all the rest were at least somewhat person-centered. In order to better examine the question of the moderating effects of type of climate, it would be preferable to have more organization-centered climate types measured. Similarly, the satisfaction measure used here was a general measure, whereas a more nuanced satisfaction measure with narrower focus on certain aspects of the organizational environment could have been more insightful.

Conclusion

The concept of climate strength is a relatively recent concept that has been receiving increasing attention in the past couple of decades. Despite the growing interest, there was a major gap in the literature, as all examinations of climate strength involved small work groups and organizations. This study sought to fill that gap by taking a macro level approach to the climate strength topic, by focusing on the entire federal government sector of the United States. Not only did this study focus on a single sector, but it also included more than six hundred thousand employees, nested within larger subagencies and agencies. The results shed light on some of the antecedents of climate strength, and also found partial support for the climate strength hypothesis, though not in the expected pattern.

The results of this investigation can better inform organizational leaders and HR managers striving to improve satisfaction levels in large sectors and organizations. Not only will they know which types of facet-specific climates are most linked to satisfaction, but they may also better understand the strategy they need to take around climate, whether that be to focus on level alone, or also strength. Finally, this exploration has provided fuel for the research engine to continue expanding our knowledge of the climate strength construct.

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Table 1

Common Satisfaction Items across Years

How satisfied are you with your involvement in decisions that affect your work?
How satisfied are you with the information you receive from management on what's going on in your organization?
How satisfied are you with the recognition you receive for doing a good job?
How satisfied are you with the policies and practices of your senior leaders?
How satisfied are you with your opportunity to get a better job in your organization?
How satisfied are you with the training you receive for your present job?
Considering everything, how satisfied are you with your job?
Considering everything, how satisfied are you with your pay?
Considering everything, how satisfied are you with your organization?
How satisfied are you with teleworking in your agency?
How satisfied are you with the alternative work schedules in your agency?

Table 2

Common Climate Items across Years

Common Wording of Item	Alternative Wording of Item (If Applicable)
I am given a real opportunity to improve my skills in my organization.	
I have enough information to do my job well.	
I have sufficient resources (for example, people, materials, budget) to get my job done.	
My workload is reasonable.	
My talents are used well in the workplace.	
I know how my work relates to the agency's goals and priorities.	
The work I do is important.	
Physical conditions (for example, noise level, temperature, lighting, cleanliness in the workplace) allow employees to perform their jobs well.	
My performance appraisal is a fair reflection of my performance.	
I am held accountable for achieving results.	
I can disclose a suspected violation of any law, rule or regulation without fear of reprisal.	
My training needs are assessed.	
The people I work with cooperate to get the job done.	
My work unit is able to recruit people with the right skills.	
Promotions in my work unit are based on merit.	
In my work unit, steps are taken to deal with a poor performer who cannot or will not improve.	
In my work unit, differences in performance are recognized in a meaningful way.	
Awards in my work unit depend on how well employees perform their jobs.	
Employees in my work unit share job knowledge with each other.	
The skill level in my work unit has improved in the past year?	
How would you rate the overall quality of work done by your work unit?	
The workforce has the job-relevant knowledge and skills necessary to accomplish organizational goals.	
Employees are recognized for providing high quality products and services.	Employees are rewarded for providing high quality products and services to customers.
Creativity and innovation are rewarded.	

(*Table 2 continues*)

(*Table 2 continued*)

Common Wording of Item	Alternative Wording of Item (If Applicable)
Policies and programs promote diversity in the workplace (for example, recruiting minorities and women, training in awareness of diversity issues, mentoring).	
Employees are protected from health and safety hazards on the job.	
My organization has prepared employees for potential security threats.	
Arbitrary action, personal favoritism and coercion for partisan political purposes are not tolerated.	
Prohibited Personnel Practices (for example, illegally discriminating for or against any employee/applicant, obstructing a person's right to compete for employment, knowingly violating veterans' preference requirements) are not tolerated.	
My supervisor supports my need to balance work and other life issues.	
My supervisor/team leader provides me with opportunities to demonstrate my leadership skills.	Supervisors/team leaders in my work unit provide employees with the opportunities to demonstrate their leadership skills.
Discussions with my supervisor/team leader about my performance are worthwhile.	
My supervisor/team leader is committed to a workforce representative of all segments of society.	
My supervisor/team leader provides me with constructive suggestions to improve my job performance.	Supervisors/team leaders provide employees with constructive suggestions to improve their job performance.
Supervisors/team leaders in my work unit support employee development.	
In my organization, leaders generate high levels of motivation and commitment in the workforce.	
My organization's leaders maintain high standards of honesty and integrity.	
Managers/supervisors/team leaders work well with employees of different backgrounds.	
Managers communicate the goals and priorities of the organization.	
Managers review and evaluate the organization's progress toward meeting its goals and objectives.	
Managers promote communication among different work units (for example, about projects, goals, needed resources).	
Managers promote communication among different work units (for example, about projects, goals, needed resources).	

Table 3

Affective Items Excluded from Analyses

I feel encouraged to come up with new and better ways of doing things.
My work gives me a feeling of personal accomplishment.
I like the kind of work I do.
Employees have a feeling of personal empowerment with respect to work processes.
I recommend my organization as a good place to work.
Overall, how good a job do you feel is being done by your immediate supervisor/team leader?
I have a high level of respect for my organization's senior leaders.

Table 4

Conceptually-based Factor Model

Factor	Items
Improvement	I am given a real opportunity to improve my skills in my organization.
	Discussions with my supervisor/team leader about my performance are worthwhile.
Resource	I have enough information to do my job well.
	I have sufficient resources (for example, people, materials, budget) to get my job done.
	My workload is reasonable.
	My training needs are assessed.
	Supervisors/team leaders in my work unit support employee development.
Work	My talents are used well in the workplace.
Significance	I know how my work relates to the agency's goals and priorities.
	The work I do is important.
Nonwork	My supervisor/team leader is committed to a workforce representative of all segments of society.
	My supervisor supports my need to balance work and other life issues.
	Policies and programs promote diversity in the workplace (for example, recruiting minorities and women, training in awareness of diversity issues, mentoring).
	Employees are protected from health and safety hazards on the job.
	My organization has prepared employees for potential security threats.
	Arbitrary action, personal favoritism and coercion for partisan political purposes are not tolerated.
	Prohibited Personnel Practices (for example, illegally discriminating for or against any employee/applicant, obstructing a person's right to compete for employment, knowingly violating veterans' preference requirements) are not tolerated.
	Physical conditions (for example, noise level, temperature, lighting, cleanliness in the workplace) allow employees to perform their jobs well.
	I can disclose a suspected violation of any law, rule or regulation without fear of reprisal.
Performance	Creativity and innovation are rewarded.
Appraisal	My performance appraisal is a fair reflection of my performance.
	I am held accountable for achieving results.
	Promotions in my work unit are based on merit.
	In my work unit, steps are taken to deal with a poor performer who cannot or will not improve.
	In my work unit, differences in performance are recognized in a meaningful way.
	Awards in my work unit depend on how well employees perform their jobs.
Team	The people I work with cooperate to get the job done.
	My work unit is able to recruit people with the right skills.
	Employees in my work unit share job knowledge with each other.
	The skill level in my work unit has improved in the past year?
	How would you rate the overall quality of work done by your work unit?

(*Table 4 continues*)

(*Table 4 continued*)

Factor	Items
Supervisor	In my organization, leaders generate high levels of motivation and commitment in the workforce. My organization's leaders maintain high standards of honesty and integrity. Managers/supervisors/team leaders work well with employees of different backgrounds. Managers communicate the goals and priorities of the organization. Managers review and evaluate the organization's progress toward meeting its goals and objectives. Managers promote communication among different work units (for example, about projects, goals, needed resources).

Table 5

EFA-based Factor Model

Scale	Items
Organization Leadership	In my organization, leaders generate high levels of motivation and commitment in the workforce.
	My organization's leaders maintain high standards of honesty and integrity.
	Managers/supervisors/team leaders work well with employees of different backgrounds.
	Managers communicate the goals and priorities of the organization.
	Managers review and evaluate the organization's progress toward meeting its goals and objectives.
	Managers promote communication among different work units (for example, about projects, goals, needed resources).
Job Significance	My talents are used well in the workplace.
	I know how my work relates to the agency's goals and priorities.
	The work I do is important.
	I am held accountable for achieving results.
Supervisor Performance	My supervisor supports my need to balance work and other life issues.
	Discussions with my supervisor/team leader about my performance are worthwhile.
	My supervisor/team leader is committed to a workforce representative of all segments of society.
	Supervisors/team leaders in my work unit support employee development.
Merit-based Culture	Promotions in my work unit are based on merit.
	In my work unit, steps are taken to deal with a poor performer who cannot or will not improve.
	In my work unit, differences in performance are recognized in a meaningful way.
	Awards in my work unit depend on how well employees perform their jobs.
	Creativity and innovation are rewarded.
Resource Availability	I have enough information to do my job well.
	I have sufficient resources (for example, people, materials, budget) to get my job done.
	My workload is reasonable.

(*Table 5 continues*)

(*Table 5 continued*)

Scale	Items
Fair and Ethical Policies	I can disclose a suspected violation of any law, rule or regulation without fear of reprisal. Policies and programs promote diversity in the workplace (for example, recruiting minorities and women, training in awareness of diversity issues, mentoring). Employees are protected from health and safety hazards on the job. My organization has prepared employees for potential security threats. Arbitrary action, personal favoritism and coercion for partisan political purposes are not tolerated. Prohibited Personnel Practices (for example, illegally discriminating for or against any employee/applicant, obstructing a person's right to compete for employment, knowingly violating veterans' preference requirements) are not tolerated.
Team	The people I work with cooperate to get the job done. Employees in my work unit share job knowledge with each other. The skill level in my work unit has improved in the past year? How would you rate the overall quality of work done by your work unit?

Table 6

Fit Statistics for Climate CFA for the 7-factor Model on 2011 and 2012, and Single-factor Model for 2012

Fit Statistic	2011 7-factor model	2012 7-factor model	2012 single-factor model
SRMR	0.04	0.04	0.06
RMSEA	0.06	0.06	0.10
TLI	0.90	0.90	0.76
CFI	0.91	0.91	0.77
RNI	0.91	0.91	0.77
Bollen	0.91	0.91	0.77

Table 7

Individual-level Scale Intercorrelations and Scale Alphas

Scale	1	2	3	4	5	6	7
1 Orglead	0.94						
2 Jobsig	0.62**	0.75					
3 Superjp	0.68**	0.56**	0.91				
4 Meritcul	0.73**	0.59**	0.65**	0.90			
5 Resource	0.55**	0.51**	0.48**	0.52**	0.74		
6 Policy	0.75**	0.59**	0.65**	0.69**	0.51**	0.85	
7 Team	0.63**	0.56**	0.59**	0.66**	0.48**	0.60**	0.81

*$p < .05$. **$p < .01$.

Table 8

Subagency Facet-specific Climate Level Intercorrelations

Scale	1	2	3	4	5	6	7
1 Orglead	1						
2 Jobsig	0.79**	1					
3 Superjp	0.74**	0.54**	1				
4 Meritcul	0.85**	0.71**	0.83**	1			
5 Resource	0.76**	0.71**	0.63**	0.72**	1		
6 Policy	0.86**	0.65**	0.79**	0.84**	0.69**	1	
7 Team	0.78**	0.61**	0.81**	0.81**	0.62**	0.77**	1

*$p < .05$. **$p < .01$.

Table 9

Subagency Facet-specific Climate Strength Intercorrelations

Scale	1	2	3	4	5	6	7
1 Orglead	1						
2 Jobsig	0.55**	1					
3 Superjp	0.74**	0.37**	1				
4 Meritcul	0.76**	0.50**	0.66**	1			
5 Resource	0.67**	0.43**	0.65**	0.56**	1		
6 Policy	0.79**	0.43**	0.80**	0.74**	0.60**	1	
7 Team	0.74**	0.51**	0.75**	0.67**	0.59**	0.71**	1

*$p < .05$. **$p < .01$.

Table 10

Agency Facet-specific Climate Level Correlations

Scale	1	2	3	4	5	6	7
1 Orglead	1						
2 Jobsig	0.83**	1					
3 Superjp	0.78**	0.73**	1				
4 Meritcul	0.82**	0.79**	0.86**	1			
5 Resource	0.76**	0.71**	0.69**	0.73**	1		
6 Policy	0.89**	0.69**	0.80**	0.72**	0.77**	1	
7 Team	0.72**	0.74**	0.80**	0.85**	0.58**	0.59**	1

*$p < .05$. **$p < .01$.

Table 11

Agency Facet-specific Climate Strength Correlations

Scale	1	2	3	4	5	6	7
1 Orglead	1						
2 Jobsig	0.56**	1					
3 Superjp	0.71**	0.40**	1				
4 Meritcul	0.57**	0.54**	0.63**	1			
5 Resource	0.60**	0.45**	0.60**	0.55**	1		
6 Policy	0.65**	0.52**	0.67**	0.50**	0.69**	1	
7 Team	0.70**	0.50**	0.62**	0.47**	0.41**	0.50**	1

*$p < .05$. **$p < .01$.

Table 12

Final Satisfaction Structure

Scale	Items
Job Satisfaction	How satisfied are you with your involvement in decisions that affect your work?
	How satisfied are you with the information you receive from management on what's going on in your organization?
	How satisfied are you with the recognition you receive for doing a good job?
	How satisfied are you with the policies and practices of your senior leaders?
	How satisfied are you with your opportunity to get a better job in your organization?
	How satisfied are you with the training you receive for your present job?
	Considering everything, how satisfied are you with your job?
	Considering everything, how satisfied are you with your organization?

Table 13

Fit Statistics for Satisfaction CFA for 2011 and 2012

Fit Statistic	2011	2012
SRMR	0.03	0.03
RMSEA	0.11	0.12
TLI	0.93	0.93
CFI	0.95	0.95
RNI	0.95	0.95
Bollen	0.95	0.95

Table 14

Descriptive Statistics for Subagency Climate Level

Scale	*n*	Min	Max	Mean	*SE*	*SD*	Lower	Upper
Orglead	292	2.86	4.04	3.47	0.01	0.20	3.44	3.49
Jobsig	292	3.65	4.29	3.99	0.01	0.11	3.98	4.00
Superjp	292	3.33	4.29	3.82	0.01	0.15	3.81	3.84
Meritcul	292	2.44	3.70	3.01	0.01	0.19	2.99	3.03
Resource	292	2.87	4.01	3.42	0.01	0.20	3.40	3.44
Policy	292	3.11	4.29	3.69	0.01	0.17	3.67	3.71
Team	292	3.50	4.31	3.88	0.01	0.13	3.86	3.89

Table 15

Descriptive Statistics for Subagency Climate Strength

Scale	*n*	Min	Max	Mean	*SE*	*SD*	Lower	Upper
Orglead	292	0.73	1.15	0.96	0.00	0.07	0.95	0.97
Jobsig	292	0.59	0.88	0.72	0.00	0.05	0.71	0.72
Superjp	292	0.72	1.18	0.96	0.00	0.08	0.95	0.97
Meritcul	292	0.82	1.14	1.00	0.00	0.06	0.99	1.00
Resource	292	0.70	1.08	0.90	0.00	0.06	0.89	0.90
Policy	292	0.63	1.01	0.80	0.00	0.07	0.80	0.81
Team	292	0.55	0.95	0.77	0.00	0.06	0.76	0.78

Table 16

Descriptive Statistics for Agency Climate Level

Scale	*n*	Min	Max	Mean	*SE*	*SD*	Lower	Upper
Orglead	79	2.74	4.26	3.46	0.03	0.27	3.40	3.52
Jobsig	79	3.57	4.42	4.00	0.02	0.16	3.96	4.04
Superjp	79	3.02	4.30	3.85	0.02	0.21	3.80	3.89
Meritcul	79	2.32	3.75	3.08	0.03	0.27	3.02	3.14
Resource	79	2.64	4.12	3.45	0.03	0.27	3.39	3.51
Policy	79	3.00	4.28	3.65	0.03	0.24	3.60	3.70
Team	79	3.51	4.57	3.93	0.02	0.19	3.89	3.97

Table 17

Descriptive Statistics for Agency Climate Strength

Scale	*n*	Min	Max	Mean	*SE*	*SD*	Lower	Upper
Orglead	79	0.75	1.26	0.97	0.01	0.10	0.95	0.99
Jobsig	79	0.50	0.98	0.73	0.01	0.08	0.71	0.75
Superjp	79	0.74	1.26	0.97	0.01	0.10	0.95	0.99
Meritcul	79	0.81	1.24	1.01	0.01	0.08	0.99	1.03
Resource	79	0.72	1.08	0.91	0.01	0.07	0.89	0.92
Policy	79	0.62	1.26	0.85	0.01	0.10	0.83	0.87
Team	79	0.48	1.03	0.77	0.01	0.09	0.75	0.79

Table 18

Intraclass Correlations for Subagency and Agency Impact on Facet-specific Climate Perceptions

Scale	Subagency	Agency
Orglead	0.02	0.01
Jobsig	0.02	0.01
Superjp	0.02	0.01
Meritcul	0.02	0.01
Resource	0.03	0.01
Policy	0.02	0.02
Team	0.02	0.01

Table 19

RWG Summary for Subagencies

	Mean	*SD*	Min	Max	Median
Orglead					
uniform.sa	0.79	0.06	0.52	0.91	0.80
slight skew.sa	0.36	0.25	0.00	0.83	0.41
modskew.sa	0.01	0.05	0.00	0.58	0.00
Jobsig					
uniform.sa	0.84	0.03	0.71	0.91	0.85
slight skew.sa	0.68	0.10	0.24	0.84	0.71
modskew.sa	0.23	0.19	0.00	0.68	0.24
Superjp					
uniform.sa	0.73	0.08	0.42	0.88	0.74
slight skew.sa	0.35	0.23	0.00	0.78	0.37
modskew.sa	0.02	0.08	0.00	0.51	0.00
Meritcul					
uniform.sa	0.68	0.07	0.34	0.84	0.69
slight skew.sa	0.09	0.15	0.00	0.65	0.00
modskew.sa	0.00	0.00	0.00	0.00	0.00
Resource					
uniform.sa	0.65	0.07	0.42	0.84	0.66
slight skew.sa	0.23	0.17	0.00	0.71	0.23
modskew.sa	0.00	0.02	0.00	0.39	0.00
Policy					
uniform.sa	0.83	0.05	0.64	0.92	0.84
slight skew.sa	0.52	0.23	0.00	0.86	0.59
modskew.sa	0.04	0.11	0.00	0.67	0.00
Team					
uniform.sa	0.82	0.04	0.70	0.93	0.82
slight skew.sa	0.62	0.11	0.17	0.89	0.64
modskew.sa	0.11	0.17	0.00	0.80	0.00
Jobsat					
uniform.sa	0.82	0.04	0.65	0.90	0.83
slight skew.sa	0.33	0.25	0.00	0.79	0.35
modskew.sa	0.00	0.00	0.00	0.00	0.00

Table 20

RWG Summary for Agencies

	Mean	*SD*	Min	Max	Median
Orglead					
uniform.sa	0.75	0.14	0.00	0.89	0.79
slight skew.sa	0.32	0.27	0.00	0.79	0.35
modskew.sa	0.01	0.04	0.00	0.34	0.00
Jobsig					
uniform.sa	0.83	0.07	0.42	0.95	0.85
slight skew.sa	0.65	0.15	0.00	0.93	0.70
modskew.sa	0.20	0.21	0.00	0.88	0.20
Superjp					
uniform.sa	0.71	0.10	0.31	0.89	0.73
slight skew.sa	0.30	0.23	0.00	0.81	0.34
modskew.sa	0.02	0.08	0.00	0.61	0.00
Meritcul					
uniform.sa	0.64	0.14	0.00	0.89	0.67
slight skew.sa	0.07	0.17	0.00	0.80	0.00
modskew.sa	0.01	0.06	0.00	0.50	0.00
Resource					
uniform.sa	0.64	0.08	0.37	0.81	0.64
slight skew.sa	0.21	0.18	0.00	0.65	0.18
modskew.sa	0.01	0.03	0.00	0.20	0.00
Policy					
uniform.sa	0.79	0.11	0.20	0.93	0.82
slight skew.sa	0.43	0.27	0.00	0.88	0.52
modskew.sa	0.04	0.13	0.00	0.75	0.00
Team					
uniform.sa	0.82	0.05	0.61	0.93	0.82
slight skew.sa	0.61	0.16	0.00	0.88	0.64
modskew.sa	0.13	0.21	0.00	0.78	0.00
Jobsat					
uniform.sa	0.80	0.07	0.49	0.93	0.83
slight skew.sa	0.30	0.26	0.00	0.86	0.34
modskew.sa	0.01	0.07	0.00	0.61	0.00

Table 21

Correlations between Subagency and Agency Size with Climate Strength

	Agency			Subagency		
Scale	Agency Sample Size	Restricted Upper Tail	Categorical	Subagency Sample Size	Restricted Upper Tail	Categorical
Orglead	-0.07	-0.07	-0.07	-0.04	-0.15*	-0.13*
Jobsig	-0.15	-0.19	-0.15	-0.10	-0.23**	-0.21**
Superjp	0.05	0.09	0.10	0.07	0.01	0.04
Meritcul	-0.08	-0.09	-0.09	-0.06	-0.17**	-0.16**
Resource	-0.04	-0.04	-0.06	-0.02	-0.06	-0.03
Policy	-0.16	-0.26*	-0.28*	0.02	-0.08	-0.06
Team	0.03	0.05	0.04	0.02	-0.06	-0.05

*$p < .05$. **$p < .01$.

Table 22

Descriptive Statistics for Agency Climate Strength Differences by Age Category

							95 Conf Interval	
	n	Min	Max	Mean	*SE*	*SD*	Lower	Upper
Orglead								
29 and under	48	-0.20	0.63	0.10	0.02	0.15	0.05	0.14
30-39	50	-0.13	0.22	0.02	0.01	0.07	0.00	0.04
40-49	50	-0.25	0.21	0.00	0.01	0.07	-0.02	0.02
50-59	50	-0.17	0.07	-0.02	0.01	0.05	-0.03	-0.01
60 and older	49	-0.06	0.58	0.04	0.01	0.10	0.02	0.07
Jobsig								
29 and under	48	-0.28	0.65	0.03	0.02	0.17	-0.01	0.08
30-39	50	-0.11	0.29	0.01	0.01	0.08	-0.01	0.03
40-49	50	-0.10	0.33	0.02	0.01	0.06	0.00	0.03
50-59	50	-0.24	0.23	0.00	0.01	0.06	-0.02	0.02
60 and older	49	-0.23	0.20	0.02	0.01	0.06	0.00	0.03
Superjp								
29 and under	48	-0.21	0.92	0.12	0.03	0.20	0.06	0.18
30-39	50	-0.13	0.34	0.02	0.01	0.08	0.00	0.04
40-49	50	-0.09	0.17	0.00	0.01	0.05	-0.01	0.02
50-59	50	-0.12	0.08	-0.02	0.01	0.04	-0.03	-0.01
60 and older	49	-0.51	0.25	0.03	0.01	0.10	0.00	0.06
Meritcul								
29 and under	48	-0.20	0.90	0.06	0.02	0.16	0.01	0.10
30-39	50	-0.16	0.25	0.02	0.01	0.07	0.00	0.04
40-49	50	-0.10	0.21	0.01	0.01	0.06	-0.01	0.02
50-59	50	-0.19	0.09	-0.02	0.01	0.04	-0.03	-0.01
60 and older	49	-0.42	0.39	0.00	0.01	0.10	-0.03	0.03
Resource								
29 and under	48	-0.33	0.68	0.10	0.02	0.15	0.06	0.14
30-39	50	-0.09	0.21	0.03	0.01	0.06	0.01	0.04
40-49	50	-0.07	0.24	0.01	0.01	0.06	-0.01	0.03
50-59	50	-0.12	0.08	-0.02	0.00	0.03	-0.03	-0.01
60 and older	49	-0.34	0.42	0.01	0.01	0.10	-0.01	0.04
Policy								
29 and under	48	-0.30	0.67	0.11	0.02	0.15	0.06	0.15
30-39	50	-0.09	0.17	0.04	0.01	0.05	0.03	0.06
40-49	50	-0.06	0.32	0.02	0.01	0.08	0.00	0.04
50-59	50	-0.23	0.08	-0.02	0.01	0.05	-0.03	0.00
60 and older	49	-0.17	0.28	0.02	0.01	0.07	0.00	0.04
Team								
29 and under	48	-0.31	0.50	0.06	0.02	0.13	0.02	0.09
30-39	50	-0.13	0.30	0.02	0.01	0.07	0.00	0.04
40-49	50	-0.12	0.21	0.01	0.01	0.06	-0.01	0.03
50-59	50	-0.13	0.23	-0.01	0.01	0.05	-0.02	0.01
60 and older	49	-0.46	0.41	0.02	0.02	0.12	-0.01	0.06

Table 23

Descriptive Statistics for Subagency Climate Strength Differences by Age Category

							95 Conf Interval	
	n	Min	Max	Mean	*SE*	*SD*	Lower	Upper
Orglead								
29 and under	276	-1.14	0.98	0.07	0.01	0.21	0.05	0.10
30-39	292	-1.10	0.43	0.01	0.01	0.13	0.00	0.03
40-49	292	-0.21	0.35	-0.01	0.00	0.06	-0.02	0.00
50-59	292	-0.25	0.20	-0.01	0.00	0.06	-0.01	0.00
60 and older	291	-0.54	0.51	0.03	0.01	0.11	0.02	0.05
Jobsig								
29 and under	276	-0.62	0.69	0.01	0.01	0.16	-0.01	0.03
30-39	292	-0.51	0.49	-0.01	0.01	0.11	-0.02	0.00
40-49	292	-0.18	0.23	0.01	0.00	0.06	0.00	0.01
50-59	292	-0.24	0.16	0.00	0.00	0.05	0.00	0.01
60 and older	291	-0.40	0.41	0.02	0.01	0.09	0.01	0.03
Superjp								
29 and under	276	-0.75	0.94	0.09	0.01	0.21	0.07	0.12
30-39	292	-0.62	0.56	0.01	0.01	0.14	-0.01	0.02
40-49	292	-0.26	0.22	-0.01	0.00	0.07	-0.02	-0.01
50-59	292	-0.30	0.29	0.00	0.00	0.06	-0.01	0.00
60 and older	291	-0.54	0.53	0.04	0.01	0.12	0.03	0.06
Meritcul								
29 and under	276	-1.11	1.07	0.05	0.01	0.21	0.02	0.07
30-39	292	-0.79	0.57	0.01	0.01	0.12	0.00	0.03
40-49	292	-0.19	0.52	-0.01	0.00	0.06	-0.01	0.00
50-59	292	-0.14	0.26	0.00	0.00	0.05	-0.01	0.00
60 and older	291	-0.27	0.38	0.01	0.01	0.09	0.00	0.02
Resource								
29 and under	276	-0.84	0.93	0.07	0.01	0.18	0.05	0.09
30-39	292	-0.34	0.47	0.02	0.01	0.10	0.01	0.03
40-49	292	-0.17	0.20	-0.01	0.00	0.05	-0.01	0.00
50-59	292	-0.20	0.22	-0.01	0.00	0.05	-0.01	0.00
60 and older	291	-0.44	0.49	0.03	0.01	0.10	0.02	0.04
Policy								
29 and under	276	-1.01	0.86	0.08	0.01	0.19	0.06	0.10
30-39	292	-0.93	0.57	0.02	0.01	0.12	0.01	0.04
40-49	292	-0.23	0.37	0.00	0.00	0.06	-0.01	0.01
50-59	292	-0.23	0.17	-0.01	0.00	0.05	-0.01	0.00
60 and older	291	-0.25	0.42	0.03	0.01	0.09	0.02	0.04
Team								
29 and under	276	-0.55	0.70	0.04	0.01	0.16	0.02	0.06
30-39	292	-1.39	0.53	-0.01	0.01	0.14	-0.02	0.01
40-49	292	-0.18	0.19	0.00	0.00	0.05	-0.01	0.00
50-59	292	-0.21	0.31	0.00	0.00	0.06	-0.01	0.01
60 and older	291	-0.25	0.35	0.04	0.01	0.10	0.02	0.05

Table 24

Descriptive Statistics for Agency Climate Strength Differences by Gender

							95 Conf Interval	
	n	Min	Max	Mean	*SE*	*SD*	Lower	Upper
Orglead								
Male	50	-0.17	0.10	0.00	0.01	0.05	-0.01	0.01
Female	50	-0.08	0.16	0.00	0.01	0.04	-0.01	0.01
Jobsig								
Male	50	-0.16	0.11	-0.02	0.00	0.03	-0.03	-0.01
Female	50	-0.07	0.18	0.02	0.00	0.03	0.01	0.03
Superjp								
Male	50	-0.13	0.24	0.03	0.01	0.05	0.01	0.04
Female	50	-0.12	0.18	-0.02	0.01	0.04	-0.03	-0.01
Meritcul								
Male	50	-0.14	0.12	0.00	0.01	0.04	-0.01	0.01
Female	50	-0.09	0.10	0.00	0.00	0.03	-0.01	0.01
Resource								
Male	50	-0.08	0.07	0.01	0.00	0.03	0.00	0.02
Female	50	-0.06	0.12	0.00	0.00	0.03	-0.01	0.01
Policy								
Male	50	-0.08	0.07	0.02	0.00	0.03	0.01	0.03
Female	50	-0.06	0.10	0.00	0.00	0.03	0.00	0.01
Team								
Male	50	-0.13	0.10	0.01	0.01	0.04	0.00	0.02
Female	50	-0.10	0.15	0.00	0.01	0.04	-0.02	0.01

Table 25

Descriptive Statistics for Subagency Climate Strength Differences by Gender

							95 Conf Interval	
	n	Min	Max	Mean	*SE*	*SD*	Lower	Upper
Orglead								
Male	292	-0.12	0.23	0.00	0.00	0.04	0.00	0.01
Female	292	-0.19	0.24	0.00	0.00	0.05	-0.01	0.01
Jobsig								
Male	292	-0.15	0.14	-0.01	0.00	0.04	-0.02	-0.01
Female	292	-0.21	0.19	0.02	0.00	0.05	0.01	0.02
Superjp								
Male	292	-0.14	0.32	0.03	0.00	0.05	0.02	0.04
Female	292	-0.20	0.26	-0.03	0.00	0.05	-0.04	-0.02
Meritcul								
Male	292	-0.19	0.17	0.00	0.00	0.04	0.00	0.01
Female	292	-0.28	0.21	0.00	0.00	0.05	-0.01	0.00
Resource								
Male	292	-0.22	0.21	0.01	0.00	0.04	0.00	0.01
Female	292	-0.22	0.16	-0.01	0.00	0.04	-0.01	0.00
Policy								
Male	292	-0.10	0.19	0.02	0.00	0.04	0.02	0.03
Female	292	-0.18	0.14	-0.01	0.00	0.04	-0.01	0.00
Team								
Male	292	-0.15	0.18	0.02	0.00	0.04	0.01	0.02
Female	292	-0.18	0.15	-0.02	0.00	0.05	-0.02	-0.01

Table 26

Descriptive Statistics for Agency Climate Strength Differences by Minority Status

							95 Conf Interval	
	n	Min	Max	Mean	*SE*	*SD*	Lower	Upper
Orglead								
Minority	50	-0.37	0.34	-0.01	0.01	0.08	-0.03	0.01
Nonminority	50	-0.10	0.17	0.01	0.01	0.04	0.00	0.02
Jobsig								
Minority	50	-0.22	0.10	0.01	0.01	0.05	0.00	0.02
Nonminority	50	-0.11	0.19	0.00	0.01	0.04	-0.01	0.01
Superjp								
Minority	50	-0.18	0.07	-0.06	0.01	0.05	-0.07	-0.04
Nonminority	50	-0.08	0.20	0.04	0.01	0.05	0.03	0.06
Meritcul								
Minority	50	-0.16	0.12	-0.02	0.01	0.05	-0.03	0.00
Nonminority	50	-0.06	0.15	0.01	0.00	0.03	0.00	0.02
Resource								
Minority	50	-0.13	0.28	0.00	0.01	0.06	-0.02	0.01
Nonminority	50	-0.06	0.09	0.01	0.00	0.02	0.01	0.02
Policy								
Minority	50	-0.14	0.18	-0.02	0.01	0.05	-0.03	0.00
Nonminority	50	-0.08	0.12	0.04	0.00	0.03	0.03	0.05
Team								
Minority	50	-0.16	0.26	-0.01	0.01	0.07	-0.03	0.01
Nonminority	50	-0.05	0.09	0.02	0.00	0.03	0.01	0.02

Table 27

Descriptive Statistics for Subagency Climate Strength Differences by Minority Status

							95 Conf Interval	
	n	Min	Max	Mean	*SE*	*SD*	Lower	Upper
Orglead								
Minority	292	-0.25	0.19	-0.02	0.00	0.06	-0.03	-0.01
Nonminority	292	-0.17	0.23	0.01	0.00	0.04	0.01	0.02
Jobsig								
Minority	292	-0.22	0.22	0.01	0.00	0.06	0.01	0.02
Nonminority	292	-0.13	0.09	-0.01	0.00	0.03	-0.01	0.00
Superjp								
Minority	292	-0.32	0.14	-0.06	0.00	0.07	-0.07	-0.05
Nonminority	292	-0.09	0.20	0.03	0.00	0.04	0.03	0.04
Meritcul								
Minority	292	-0.25	0.32	-0.02	0.00	0.06	-0.02	-0.01
Nonminority	292	-0.14	0.17	0.01	0.00	0.04	0.00	0.01
Resource								
Minority	292	-0.29	0.20	-0.02	0.00	0.06	-0.02	-0.01
Nonminority	292	-0.10	0.17	0.01	0.00	0.03	0.01	0.02
Policy								
Minority	292	-0.21	0.31	-0.03	0.00	0.06	-0.03	-0.02
Nonminority	292	-0.11	0.12	0.03	0.00	0.03	0.03	0.03
Team								
Minority	292	-0.25	0.22	-0.02	0.00	0.06	-0.03	-0.02
Nonminority	292	-0.11	0.15	0.01	0.00	0.03	0.01	0.02

Table 28

Descriptive Statistics for Agency Climate Strength Differences by Agency Tenure

							95 Conf Interval	
	n	Min	Max	Mean	*SE*	*SD*	Lower	Upper
Orglead								
Up to 3 years	50	-0.12	0.23	0.03	0.01	0.06	0.02	0.05
4 to 5 years	50	-0.55	0.18	-0.01	0.02	0.12	-0.05	0.02
6 to 10 years	50	-0.36	0.23	-0.01	0.01	0.08	-0.03	0.01
11 to 20 years	50	-0.14	0.52	0.01	0.01	0.09	-0.02	0.03
More than 20 years	50	-0.24	0.11	-0.01	0.01	0.07	-0.02	0.01
Jobsig								
Up to 3 years	50	-0.16	0.26	0.00	0.01	0.06	-0.02	0.01
4 to 5 years	50	-0.20	0.27	-0.02	0.01	0.09	-0.04	0.01
6 to 10 years	50	-0.12	0.24	-0.01	0.01	0.06	-0.02	0.01
11 to 20 years	50	-0.48	0.17	0.00	0.01	0.09	-0.02	0.03
More than 20 years	50	-0.09	0.25	0.03	0.01	0.05	0.02	0.04
Superjp								
Up to 3 years	50	-0.09	0.23	0.04	0.01	0.06	0.02	0.06
4 to 5 years	50	-0.38	0.52	-0.02	0.02	0.11	-0.05	0.02
6 to 10 years	50	-0.16	0.35	-0.01	0.01	0.09	-0.03	0.02
11 to 20 years	50	-0.29	0.15	-0.02	0.01	0.08	-0.04	0.01
More than 20 years	50	-0.09	0.34	0.03	0.01	0.07	0.01	0.05
Meritcul								
Up to 3 years	50	-0.13	0.28	0.02	0.01	0.07	0.01	0.04
4 to 5 years	50	-0.41	0.15	-0.01	0.01	0.09	-0.04	0.01
6 to 10 years	50	-0.17	0.19	-0.01	0.01	0.06	-0.02	0.01
11 to 20 years	50	-0.14	0.24	0.00	0.01	0.06	-0.02	0.02
More than 20 years	50	-0.13	0.26	0.00	0.01	0.06	-0.02	0.02
Resource								
Up to 3 years	50	-0.25	0.32	0.01	0.01	0.08	-0.01	0.04
4 to 5 years	50	-0.45	0.11	-0.02	0.01	0.10	-0.05	0.01
6 to 10 years	50	-0.20	0.33	0.00	0.01	0.08	-0.02	0.02
11 to 20 years	50	-0.21	0.22	0.00	0.01	0.06	-0.01	0.02
More than 20 years	50	-0.17	0.21	0.01	0.01	0.06	-0.01	0.02
Policy								
Up to 3 years	50	-0.06	0.28	0.06	0.01	0.06	0.05	0.08
4 to 5 years	50	-0.56	0.32	0.00	0.02	0.11	-0.03	0.03
6 to 10 years	50	-0.11	0.31	0.00	0.01	0.06	-0.01	0.02
11 to 20 years	50	-0.20	0.41	0.00	0.01	0.08	-0.02	0.02
More than 20 years	50	-0.14	0.49	0.01	0.01	0.08	-0.01	0.03
Team								
Up to 3 years	50	-0.19	0.34	0.01	0.01	0.08	-0.01	0.03
4 to 5 years	50	-0.38	0.19	-0.02	0.01	0.09	-0.05	0.00
6 to 10 years	50	-0.26	0.32	-0.01	0.01	0.08	-0.04	0.01
11 to 20 years	50	-0.14	0.17	0.01	0.01	0.06	-0.01	0.03
More than 20 years	50	-0.14	0.36	0.03	0.01	0.08	0.01	0.05

Table 29

Descriptive Statistics for Subagency Climate Strength Differences by Agency Tenure

							95 Conf Interval	
	n	Min	Max	Mean	*SE*	*SD*	Lower	Upper
Orglead								
Up to 3 years	292	-0.81	0.42	0.03	0.01	0.10	0.02	0.04
4 to 5 years	292	-0.36	0.42	0.01	0.01	0.10	-0.01	0.02
6 to 10 years	292	-0.33	0.22	-0.01	0.00	0.07	-0.02	0.00
11 to 20 years	292	-0.29	0.44	0.01	0.01	0.09	0.00	0.02
More than 20 years	292	-0.37	0.48	0.02	0.01	0.10	0.00	0.03
Jobsig								
Up to 3 years	292	-0.22	0.66	0.00	0.00	0.08	-0.01	0.01
4 to 5 years	292	-0.37	0.82	0.00	0.01	0.11	-0.01	0.01
6 to 10 years	292	-0.48	0.27	0.00	0.00	0.08	-0.01	0.01
11 to 20 years	292	-0.47	0.28	0.01	0.00	0.08	0.00	0.02
More than 20 years	292	-0.82	0.38	0.02	0.01	0.10	0.01	0.03
Superjp								
Up to 3 years	292	-0.97	0.53	-0.02	0.01	0.11	-0.03	0.00
4 to 5 years	292	-0.76	0.50	-0.02	0.01	0.13	-0.04	-0.01
6 to 10 years	292	-0.65	0.30	-0.05	0.01	0.11	-0.06	-0.03
11 to 20 years	292	-0.25	0.74	-0.03	0.01	0.09	-0.04	-0.02
More than 20 years	292	-0.53	0.84	-0.04	0.01	0.12	-0.05	-0.02
Meritcul								
Up to 3 years	292	-0.99	0.52	0.02	0.01	0.09	0.01	0.03
4 to 5 years	292	-0.63	0.63	0.02	0.01	0.12	0.00	0.03
6 to 10 years	292	-0.47	0.28	-0.01	0.00	0.08	-0.02	0.00
11 to 20 years	292	-0.19	0.62	0.01	0.00	0.07	0.00	0.02
More than 20 years	292	-0.34	0.72	0.00	0.01	0.10	-0.01	0.01
Resource								
Up to 3 years	292	-0.21	0.41	0.02	0.00	0.08	0.01	0.03
4 to 5 years	292	-0.42	0.42	0.00	0.01	0.10	-0.01	0.02
6 to 10 years	292	-0.29	0.36	-0.01	0.00	0.07	-0.01	0.00
11 to 20 years	292	-0.41	0.26	0.00	0.00	0.07	-0.01	0.01
More than 20 years	292	-0.73	0.98	0.02	0.01	0.12	0.00	0.03
Policy								
Up to 3 years	292	-0.82	0.29	0.05	0.01	0.09	0.04	0.06
4 to 5 years	292	-0.43	0.74	0.02	0.01	0.11	0.01	0.03
6 to 10 years	292	-0.41	0.36	0.00	0.00	0.08	-0.01	0.01
11 to 20 years	292	-0.29	0.24	0.00	0.00	0.08	-0.01	0.01
More than 20 years	292	-0.28	0.75	0.01	0.01	0.09	0.00	0.02
Team								
Up to 3 years	292	-0.57	0.35	0.00	0.00	0.08	0.00	0.01
4 to 5 years	292	-0.38	0.70	0.00	0.01	0.11	-0.01	0.01
6 to 10 years	292	-0.29	0.37	-0.01	0.00	0.08	-0.02	0.00
11 to 20 years	292	-0.42	0.33	0.01	0.00	0.08	0.00	0.02
More than 20 years	292	-0.30	0.51	0.02	0.01	0.10	0.01	0.04

Table 30

Descriptive Statistics for Agency Climate Strength Differences by Federal Tenure

							95 Conf Interval	
	n	Min	Max	Mean	*SE*	*SD*	Lower	Upper
Orglead								
Up to 3 years	50	-0.10	0.65	0.10	0.02	0.11	0.07	0.13
4 to 5 years	50	-0.21	0.66	0.03	0.02	0.12	-0.01	0.06
6 to 10 years	50	-0.21	0.36	-0.01	0.01	0.08	-0.03	0.02
11 to 14 years	50	-0.14	0.39	0.02	0.01	0.10	-0.01	0.05
15 to 20 years	50	-0.29	0.70	0.00	0.02	0.15	-0.04	0.04
More than 20 years	50	-0.14	0.11	-0.01	0.01	0.05	-0.02	0.00
Jobsig								
Up to 3 years	50	-0.22	0.24	0.02	0.01	0.08	-0.01	0.04
4 to 5 years	50	-0.41	0.51	-0.01	0.02	0.13	-0.05	0.02
6 to 10 years	50	-0.27	0.30	-0.01	0.01	0.08	-0.03	0.02
11 to 14 years	50	-0.15	0.24	0.01	0.01	0.08	-0.01	0.03
15 to 20 years	50	-0.25	0.22	-0.01	0.01	0.09	-0.03	0.02
More than 20 years	50	-0.23	0.14	0.01	0.01	0.05	-0.01	0.02
Superjp								
Up to 3 years	50	-0.07	0.38	0.09	0.01	0.09	0.07	0.12
4 to 5 years	50	-0.12	0.80	0.03	0.02	0.13	0.00	0.07
6 to 10 years	50	-0.26	0.58	0.00	0.02	0.12	-0.04	0.03
11 to 14 years	50	-0.21	0.36	-0.02	0.01	0.09	-0.04	0.01
15 to 20 years	50	-0.31	0.39	0.00	0.02	0.13	-0.04	0.04
More than 20 years	50	-0.13	0.10	-0.01	0.01	0.04	-0.02	0.00
Meritcul								
Up to 3 years	50	-0.19	0.32	0.05	0.01	0.09	0.02	0.08
4 to 5 years	50	-0.30	0.45	0.01	0.01	0.10	-0.01	0.04
6 to 10 years	50	-0.20	0.33	0.00	0.01	0.08	-0.02	0.03
11 to 14 years	50	-0.12	0.36	0.01	0.01	0.08	-0.01	0.03
15 to 20 years	50	-0.21	0.36	0.01	0.01	0.10	-0.02	0.03
More than 20 years	50	-0.17	0.20	-0.01	0.01	0.05	-0.03	0.00
Resource								
Up to 3 years	50	-0.21	0.56	0.06	0.02	0.11	0.03	0.09
4 to 5 years	50	-0.40	0.63	0.02	0.02	0.13	-0.02	0.06
6 to 10 years	50	-0.25	0.21	0.01	0.01	0.07	-0.01	0.02
11 to 14 years	50	-0.27	0.33	0.00	0.01	0.10	-0.03	0.03
15 to 20 years	50	-0.24	0.35	-0.01	0.01	0.09	-0.03	0.02
More than 20 years	50	-0.17	0.17	-0.01	0.01	0.05	-0.02	0.01
Policy								
Up to 3 years	50	-0.06	0.32	0.10	0.01	0.08	0.08	0.13
4 to 5 years	50	-0.26	0.84	0.07	0.02	0.15	0.02	0.11
6 to 10 years	50	-0.22	0.39	0.01	0.01	0.09	-0.01	0.04
11 to 14 years	50	-0.35	0.34	0.00	0.01	0.09	-0.02	0.03
15 to 20 years	50	-0.27	0.63	-0.01	0.02	0.12	-0.04	0.02
More than 20 years	50	-0.12	0.09	-0.01	0.01	0.04	-0.02	0.00

(*Table 30 continues*)

(*Table 30 continued*)

	n	Min	Max	Mean	*SE*	*SD*	95 Conf Interval Lower	95 Conf Interval Upper
Team								
Up to 3 years	50	-0.26	0.24	0.03	0.01	0.08	0.01	0.05
4 to 5 years	50	-0.23	0.48	0.02	0.02	0.11	-0.01	0.06
6 to 10 years	50	-0.36	0.33	-0.01	0.01	0.09	-0.03	0.02
11 to 14 years	50	-0.26	0.31	0.01	0.01	0.09	-0.01	0.03
15 to 20 years	50	-0.27	0.40	0.00	0.01	0.10	-0.03	0.03
More than 20 years	50	-0.16	0.23	0.00	0.01	0.05	-0.02	0.01

Table 31

Descriptive Statistics for Subagency Climate Strength Differences by Federal Tenure

							95 Conf Interval	
	n	Min	Max	Mean	*SE*	*SD*	Lower	Upper
Orglead								
Up to 3 years	291	-0.32	0.70	0.07	0.01	0.11	0.06	0.09
4 to 5 years	292	-0.45	0.81	0.03	0.01	0.15	0.01	0.05
6 to 10 years	292	-0.27	0.46	0.01	0.01	0.09	0.00	0.02
11 to 14 years	291	-0.50	0.68	-0.01	0.01	0.13	-0.02	0.01
15 to 20 years	291	-1.07	0.59	-0.02	0.01	0.14	-0.03	0.00
More than 20 years	292	-0.26	0.27	0.00	0.00	0.06	-0.01	0.00
Jobsig								
Up to 3 years	291	-0.30	0.38	0.02	0.01	0.09	0.01	0.04
4 to 5 years	292	-0.41	0.67	0.00	0.01	0.12	-0.02	0.01
6 to 10 years	292	-0.26	0.32	0.00	0.00	0.07	-0.01	0.01
11 to 14 years	291	-0.30	0.51	0.01	0.01	0.11	0.00	0.02
15 to 20 years	291	-0.86	0.34	-0.01	0.01	0.12	-0.03	0.00
More than 20 years	292	-0.28	0.26	0.01	0.00	0.06	0.00	0.01
Superjp								
Up to 3 years	291	-0.52	0.49	0.08	0.01	0.12	0.06	0.09
4 to 5 years	292	-0.42	0.65	0.03	0.01	0.15	0.01	0.04
6 to 10 years	292	-0.45	0.53	0.01	0.01	0.11	-0.01	0.02
11 to 14 years	291	-0.50	0.90	-0.01	0.01	0.14	-0.03	0.00
15 to 20 years	291	-0.86	0.50	-0.04	0.01	0.15	-0.05	-0.02
More than 20 years	292	-0.29	0.36	0.00	0.00	0.07	-0.01	0.01
Meritcul								
Up to 3 years	291	-0.28	0.52	0.05	0.01	0.09	0.04	0.06
4 to 5 years	292	-0.43	0.95	0.03	0.01	0.15	0.01	0.04
6 to 10 years	292	-0.33	0.27	0.01	0.00	0.08	0.00	0.02
11 to 14 years	291	-0.34	0.61	0.00	0.01	0.10	-0.01	0.02
15 to 20 years	291	-0.90	0.52	-0.02	0.01	0.13	-0.04	-0.01
More than 20 years	292	-0.18	0.16	-0.01	0.00	0.05	-0.02	0.00
Resource								
Up to 3 years	291	-0.21	0.49	0.06	0.01	0.10	0.05	0.07
4 to 5 years	292	-0.86	0.43	0.01	0.01	0.13	0.00	0.03
6 to 10 years	292	-0.25	0.25	0.01	0.00	0.07	0.00	0.01
11 to 14 years	291	-0.57	0.40	-0.01	0.01	0.11	-0.02	0.00
15 to 20 years	291	-0.61	0.77	-0.02	0.01	0.12	-0.03	-0.01
More than 20 years	292	-0.21	0.31	0.00	0.00	0.05	-0.01	0.00
Policy								
Up to 3 years	291	-0.46	0.40	0.09	0.01	0.10	0.08	0.10
4 to 5 years	292	-0.61	0.75	0.04	0.01	0.13	0.03	0.06
6 to 10 years	292	-0.30	0.45	0.02	0.01	0.09	0.01	0.03
11 to 14 years	291	-0.34	0.52	-0.01	0.01	0.10	-0.02	0.01
15 to 20 years	291	-1.07	0.42	-0.03	0.01	0.12	-0.04	-0.01
More than 20 years	292	-0.15	0.20	0.00	0.00	0.05	-0.01	0.00

(*Table 31 continues*)

(*Table 31 continued*)

	n	Min	Max	Mean	*SE*	*SD*	95 Conf Interval Lower	95 Conf Interval Upper
Team								
Up to 3 years	291	-0.24	0.44	0.04	0.01	0.09	0.03	0.05
4 to 5 years	292	-0.93	0.59	0.01	0.01	0.14	0.00	0.03
6 to 10 years	292	-0.37	0.30	0.00	0.00	0.09	-0.01	0.01
11 to 14 years	291	-0.32	0.69	0.01	0.01	0.11	0.00	0.02
15 to 20 years	291	-0.53	0.53	-0.02	0.01	0.13	-0.03	0.00
More than 20 years	292	-0.26	0.29	0.00	0.00	0.06	-0.01	0.01

Table 32

Correlations between Federal and Agency Tenure and Agency Climate Strength

Scale	Agency Tenure	Federal Tenure
Orglead	0.12	0.12
Jobsig	0.07	0.04
Superjp	-0.01	-0.02
Meritcul	0.07	0.05
Resource	-0.02	0.07
Policy	-0.08	-0.03
Team	0.09	0.09

*$p < .05$. **$p < .01$.

Table 33

Correlations between Federal and Agency Tenure and Subagency Climate Strength

Scale	Agency Tenure	Federal Tenure
Orglead	-0.21*	-0.03
Jobsig	-0.18	-0.09
Superjp	-0.17*	-0.04
Meritcul	-0.21*	-0.03
Resource	-0.21*	-0.05
Policy	-0.17	0.01
Team	-0.23*	-0.06

*$p < .05$. **$p < .01$.

Table 34

Standardized Regression Coefficients for Subagency Climate Level Predicting Individual-level Satisfaction, and Controlling for Subagency Climate Strength, Subagency Size, and Individual Age, Federal Tenure, and Agency Tenure

Scale	Standardized Coefficient	*t*	Sig.
Orglead	0.086	8.688	.000
Jobsig	0.023	2.818	.005
Superjp	0.013	1.466	.144
Meritcul	0.047	4.789	.000
Resource	0.023	4.138	.000
Policy	-0.003	-0.279	.781
Team	-0.018	-2.084	.038

Table 35

Standardized Regression Coefficients for Subagency Climate Strength Predicting Individual-level Satisfaction, and Controlling for Subagency Climate Level, Subagency Size, and Individual Age, Federal Tenure, and Agency Tenure

Scale	Standardized Coefficient	*t*	Sig.
Orglead	0.003	0.423	.673
Jobsig	-0.004	-0.727	.468
Superjp	-0.009	-1.210	.227
Meritcul	0.013	2.097	.037
Resource	-0.015	-3.495	.001
Policy	-0.004	-0.436	.663
Team	-0.001	-0.219	.827

Table 36

Moderation Analyses for Subagency Facet-specific Climate Strength and Level Predicting Individual-level Satisfaction, while Controlling for Subagency Size, and Individual Age, Federal Tenure, and Agency Tenure

	Step 1			Step 2		
Scale	Beta	*t*	*p*	Beta	*t*	*p*
Orglead	AIC=1379643			AIC=1379645		
Strength	0.003	0.706	.481	0.003	0.688	.492
Level	0.168	32.059	.000	0.168	31.789	.000
Interaction				0.000	-0.016	.987
Jobsig	AIC=1379904			AIC=1379897		
Strength	0.007	0.982	.327	0.009	1.322	.187
Level	0.142	17.820	.000	0.135	16.553	.000
Interaction				0.011	2.980	.003
Superjp	AIC=1379943			AIC=13879938		
Strength	0.002	0.186	.853	0.009	0.954	.341
Level	0.145	13.935	.000	0.147	14.289	.000
Interaction				-0.011	-2.587	.010
Meritcul	AIC=1379773			AIC=137771		
Strength	0.009	1.831	.068	0.005	0.949	.343
Level	0.179	29.339	.000	0.179	29.571	.000
Interaction				0.007	2.034	.043
Resource	AIC=1379877			AIC=1379874		
Strength	-0.012	-2.145	.033	-0.013	-2.374	.018
Level	0.119	17.899	.000	0.119	18.030	.000
Interaction				0.007	2.195	.029
Policy	AIC=1379874			AIC=1379876		
Strength	0.032	3.753	.000	0.032	3.760	.000
Level	0.182	19.936	.000	0.182	19.864	.000
Interaction				-0.002	-0.378	.705
Team	AIC=1379969			AIC=13879971		
Strength	0.001	0.085	.932	-0.001	-0.065	.948
Level	0.135	13.412	.000	0.136	13.403	.000
Interaction				0.003	0.717	.474

Table 37

Satisfaction Values for High and Low Job Significance, Supervisor Performance, Merit-based Reward Climate, and Resource Availability Climate Levels and Strengths

Level	Strength	Jobsig	Superjp	Meritcul	Resource Availability
Low	Low	-0.14	-0.13	-0.18	-0.13
Low	High	-0.13	-0.17	-0.18	-0.10
High	High	0.12	0.15	0.17	0.13
High	Low	0.16	0.15	0.19	0.11