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Reform Stress in the Public Sector?

Linking Change Diversity to Turnover Intentions and Presenteeism among Civil Servants using a Matching Approach

Abstract: This paper aims to examine the effect of having experienced diverse changes over a short period of time on the turnover intent and presenteeism behavior of public sector employees. Identifying such effect has been difficult since extant research often defined and studied organizational changes as single, isolated events. Consequently, they may have failed to capture how different changes interact with one another, and what cumulative impact diverse changes have on employees. We introduce nonparametric matching, using data from the Australian Public Service, allowing us to overcome the challenge of distinguishing between the effect of change diversity and that of pre-existing problems. Results show both turnover intent and presenteeism increase in organizations with high change diversity. This suggests that employees perform emotion-focused (turnover intent) and problem-focused (presenteeism) coping when faced with high change diversity, and points at the need for sufficient recovery time in between changes.

Keywords: change diversity, nonparametric matching, presenteeism, turnover intention

1 Introduction

The environment in which public services operate is rapidly evolving on multiple fronts. Increasing demands on accountability and performance are giving rise to policy design and delivery challenges, while technological advances have led to a strong focus on the digitalizing of service delivery (Wegrich, 2020). Simultaneously, labor supply challenges for critical functions are becoming more urgent (Australian Public Service Commission [APSC], 2019). In order to respond to these challenges and opportunities, the public sector needs to continuously adapt by implementing series of organizational changes (Pollitt & Bouckaert, 2017; Homberg, Vogel, & Weiherl, 2019). Meanwhile, these changes often do not produce the the desired outcomes while producing a range of unintended side effects (Brunsson, 2009; McNulty and Ferlie, 2004)

A vast body of literature already explored the potential adverse effects of organizational change on organizations and their employees, with certain studies indicating that changes are even more difficult to implement in public organizations which typically operate in an environment characterized by checks and balances, shared power, divergent interests and the political primate (Robertson & Seneviratne, 1995; van der Voet et al., 2015). Furthermore, Worrall et al. (2000) found that changes can have an even more severe impact on public sector employees compared to those in the private sector. However, prior research often focused on a particular type of change, defining and studying it (explicitly or implicitly) as a single change event (e.g. Armenakis & Bedeian, 1999). Meanwhile, researchers as well as practitioners have indicated there is a seemingly growing appetite for change in the public sector, with changes being introduced at an increasingly rapid pace (Brunsson, 2009). Importantly, one type of change often coincides with or instigates another (i.e., a merger spurring personnel reductions and location change) (McMurray, 2007; Pollitt, 2007; Wynen et al. 2020). This provides support

for our argument that organizational changes should not be studied as isolated events, but rather, that a more holistic approach is needed that captures potential accumulating effects of diverse changes experienced over a short time. Even what at face-value appears to be a single, isolated change event (i.e. a reorganization or merger), is often experienced by individuals as an accumulation of diverse changes, each having a different impact on them and their organizations. Consequently, because of their limited exploration of the concept of change, earlier studies may have failed to capture how different changes interact with one another, and what cumulative impact these diverse changes have on employees.

Furthermore, both researchers as well as practitioners have pointed to the growing prevalence of so-called ‘change fatigue’ (an inability to cope with continuous change and its implications) among civil servants (De Vries, 2013; Bernerth et al. 2011; Ferlie et al., 2003; Pollitt, 2007; Walshe, 2003). This further warrants our focus on the impact of change diversity, as theory suggests that repeated confrontation with different types of stressors harms an individual’s coping resources, making them less capable of dealing with subsequent stressful events. In the context of change, this would imply constant exposure to new types of change might be more difficult for employees to cope with, compared to repeated changes in one particular domain (for instance repeated changes in manager).

Consequently, we take on a novel perspective in this study by distinguishing change diversity from general organizational change (and how it is typically studied, as one single change event). This allows us to gain a deeper understanding of how contemporary change processes impact employees and how different changes might interact and lead to an accumulation of negative effects in employees. In doing so, this study builds on previous theorization that expects changes to be particularly intense – that is: lead to uncertain and stressful work

environments – when employees have experienced *diverse* changes in a short time span (Moore et al., 2004).

Literature already indicates that staff who are swamped by ongoing changes suffer from high levels of stress and anxiety leading to an increase in coping behavior (Smollan, 2015; Fugate, Prussia & Kinicki, 2012; Staw, Sandelands, & Dutton, 1981). In line with this, organizations with an intense history of change were found to have higher absenteeism rates, a reduced capacity for innovation, and were more likely to face defensive silence from their employees (Boon et al., 2020; McMurray, 2007; Moore et al., 2004; Wynen, Boon, et al., 2019; Wynen et al., 2017; Wynen, Verhoest, et al., 2019). Building further on these insights, we expect that an increase in change diversity (i.e. the amount of diverse changes experienced in a short timeframe) will lead to an aggregated impact on coping behavior. Specifically, this study examines the relation between change diversity (independent) and two dependent variables that previous studies have identified as potential coping responses to stressful workplace environments: presenteeism and turnover intention (Lazarus & Folkman, 1984).

Presenteeism behavior reflects the behavior of showing up at work while feeling not well enough (Aronsson et al., 2000; Caverley et al., 2007), while turnover intention captures the willingness (or the act of contemplating) to leave the organization (Tett and Meyer, 1993). We have chosen to focus on these two behaviors, since they present two clearly distinct types of coping behavior but at the same time can be equally detrimental to organizations and employee wellbeing. While earlier research has already found evidence of the negative impact of organizational change on turnover intentions (Bordia et al. 2011; Cullen-Lester et al., 2019; Moore, Grunberg, & Greenberg, 2004; Rafferty & Griffin, 2006; Raza, Khan, & Mujtaba; 2018; Lundmark et al. 2021), we believe it has insufficiently taken into consideration the

current reality of change-fatigued public organizations that undergo increasingly elaborate change trajectories. Therefore, we aim to gain a deeper understanding of this relationship by examining the impact of increasing change diversity on turnover intentions. Meanwhile, surprisingly little research has looked into the effect of change on presenteeism, despite it being a growing issue for many organizations (Firms et al., 2006).

The remainder of this article is organized as follows. Section 2 discusses the literature regarding the impact of intense change on employee stress and anxiety, and subsequent coping behaviors. In Section 3, the estimation strategy is discussed, while in section 4 the data and variables are presented. Section 5 presents the results, and Section 6 concludes and outlines possibilities for future research on this topic.

2 Literature Review

Insights in the responses of employees to organizational changes has received considerable attention in both public and private management scholarship and in organizational psychology (e.g. Worrall et al., 2000; Noblet et al., 2006; Seo & Hill, 2005). Research confirms that organizational change brings along considerable uncertainty and stress, in turn causing employees to resort to a variety of – often undesirable - strategies for coping with their changing work environment (Smollan, 2015; Oreg et al., 2011). In our study, we will focus on two particular types of coping behavior; absenteeism and turnover intention. We build on Lazarus and Folkman's (1984) cognitive- phenomenological model of stress and coping, combining this with insights from threat-rigidity theory and the stress accumulation vs resilience models, to link these two behaviors to change diversity.

Organizational Change and Coping: Presenteeism and Turnover Intent

Organizational change research has largely concluded that employees perceive changes in their workplace in a negative manner, and experience these as stressful events (Cullen-Lester et al., 2019). In particular, changes to processes, structures and routines can cause strong divergence from established routines, and may also trigger substantial identity questions when the organization with whom employees identify (and which may even serve as an important part of their own identity) is subject to change (Boon et al., 2020; Corley & Gioia, 2004). Organizational change therefore often leads employees to feel a lack of control and to experience increased uncertainty (Seo & Hill, 2005; Bordia et al., 2004; Schweiger & DeNisi, 1991; Dudley & Raymer, 2001). In turn, the uncertainty employees experience over workplace changes and the impact this may have on them, or the organization, is likely to result in an elevated stress response (Smollan, 2015; DiFonzo & Bordia, 2002; Lazarus & Folkman, 1984).

Lazarus and Folkman (1999) explain that such stress is most likely to emerge when a person appraises his or her environment as potentially challenging, threatening, or harmful, which in turn will lead to efforts to resolve the appraised challenge, threat, or harm through coping processes (Lazarus, 1999). In line with this, Robinson & Griffiths (2005) found that civil servants turned to a range of coping strategies when confronted with a large-scale transformational change. Their findings also indicate that a feeling of harm or loss may be prevalent, if for instance the change has led to the loss of valued co-workers or of valued aspects of one's job such as power, rank, or a sense of mastery (Robinson et al., 2005). However, for most people, change will also be perceived as a threat, focusing on harms or losses that have not yet taken place but that are anticipated. Even when a harm/loss has occurred, it can continue to instill a sense of threat, of more harm to come.

Besides perceptions of threat or harm/loss, stressful events could also be perceived as challenging by some, in which positive emotions such as eagerness and excitement are most prominent (Lazarus et al., 1984). Importantly, such appraisals of challenge are more likely to occur when the person has a sense of control over their environment, a crucial resource which is often compromised during change (Lazarus et al., 1984). The amount of control individuals perceive will play an important role in determining which coping behavior individuals ultimately resort to. Specifically, Lazarus et al. (1984) distinguish between two major types of coping behavior: emotion-focused vs. problem-focused. The latter will be centered on strategies to solve the problem causing the distress, while emotion-focused coping will be directed at regulating one's emotional response to the problem. In the context of change, employees can resort to either type of coping behavior.

In general, emotion-focused forms of coping (such as avoidance, distancing and minimization) are more likely to occur when there has been an appraisal that nothing can be done to modify a harmful or threatening situation (Lazarus & Folkman, 1984). In the context of organizational change, we can thus expect individuals to resort to emotion-focused coping when they feel they have no control over the changes being implemented and see no conceivable way of altering the (expected) outcomes. In particular, they can be tempted to resort to avoidance strategies such as planning to leave the organization (i.e. turnover intention). We can therefore consider turnover intention as a form of emotion-focused coping (cf. Lee, 2018). Research already indicated that an intense change history can increase employees' willingness to leave the organization, especially when changes were poorly managed (Bordia et al., 2011). Moore, et al. (2004), for instance, found that exposure to repeated downsizing events significantly increased turnover intentions. Interestingly, Raza et al. (2018) found that the impact of change on turnover intentions of civil servants working in a large public organization varied in strength based on the type of change intervention (changes in the field of HR, technology, strategy, or

human processes). Moreover, Lundmark et al. (2021) noted that the perception of frequent changes can be seen as a tipping point that forces employees to engage in coping behavior (including intent to leave the organization) to handle increased workplace demands. These findings thus provide an added argument in support for our focus on change diversity.

Problem-focused forms of coping, on the other hand, are more probable when people perceive that threatening conditions posed by organizational change can be resolved in one way or another (Folkman & Lazarus, 1980; Terry, Callan, & Sartori, 1996). In this case, employees can be more inclined to resort to problem-focused coping strategies as a strategy to combat the stress and uncertainty change brings (especially when it is only perceived as a temporary side effect of change). In addition, Lazarus et al. distinguish between problem-focused coping directed at the environment vs. directed at the self. While the former includes strategies for altering environmental factors (barriers, resources), the latter includes strategies that are directed at motivational or cognitive changes such as shifting one's level of aspiration, finding other sources of gratification, developing new standards of behavior, or learning new skills and procedures. Following this line of thought, presenteeism – our second variable of interest - can be considered a problem-focused coping strategy directed at the self. In particular, it can be viewed as a strategy in which a person tries to deal with the challenges of organizational change by adjusting one's own behavior: i.e. be present at work at any cost (even when being physically or mentally unwell).

Through this type of behavior, employees might feel they can regain or increase their sense of control, by ensuring they don't miss out on crucial information related to change, and by being present to be able to closely monitor every stage of the change process. Additionally, research also found presenteeism to be significantly correlated with job insecurity and workload among civil servants involved in a large-scale downsizing initiative (Caverley et al., 2007). Since organizational change - especially when it concerns a major restructuring - can cause

significant job insecurity and often entails increasing work demands (including higher workloads), we can see how certain employees might be tempted to revert to presenteeism behavior (Jones et al., 2008; Cullen et al., 2014).

Finally, it is important to note that coping is not only reactive but can also be proactive. Such form of anticipatory coping can function to preempt anticipated stress and its effects (cf. Aspinwall & Taylor, 1997). Thus, even the mere announcement of future changes can induce anticipatory coping among employees, causing them to resort to coping behaviors such as presenteeism or planning to leave the organization, in an attempt to prepare for expected difficulties or negative change outcomes.

Coping in a Context of High Change Diversity

Literature indicates that, as the organization stabilizes and employees adapt to the new situation, the detrimental effects of an organizational change on both the individual and organizational level are likely to wane (Seo & Hill, 2005; Grunberg, Moore, & Greenberg, 2008). However, as addressed earlier, change episodes often do not occur in isolation, but rather in short succession or even simultaneously (whether it concerns a series of related changes or one larger-scale change that actually consists of different subchanges).

The literature so far is ambivalent regarding the impact of multiple (or: repetitive) change on employees. The resilience model states that employees who have experienced substantial stressors are strengthened by these experiences and better prepared to face subsequent incidents (Dougall et al., 2000). A contrasting perspective is provided by the stress-accumulation model, which posits that an accumulation of stress and uncertainty negatively affects employees' coping resources (Moore et al., 2004). Evidence for both models is mixed and highlights the importance of the diversity of experienced change: the resilience model has validity in contexts of repeated but similar stressors, while the stress-accumulation model better captures situations

of varied types of stressors (Dougall et al., 2000). Techniques to cope with change-related stress and uncertainty that were developed during earlier changes may protect employees in future threatening situations, but only if these future threats are sufficiently similar. This observation is in line with preliminary evidence on public sector change. Wynen et al. (2017) find evidence for a negative impact of sequences of diverse structural reforms on innovation. In related studies, these authors also observe a relation between intense reform histories and a decrease in perceived autonomy and increases in absenteeism levels (Kleizen et al., 2018; Wynen, Verhoest, et al., 2019). McMurray (2007) finds that the accumulation of different types of externally imposed organizational change causes managers and practitioners to reluctantly turn away from partnership working.

In line with these observations, the present study sees the need to focus on *change diversity* – that is: the extent to which an employee has experienced different types of change in a short time span. We expect a setting of high change diversity - in which employees are confronted with many different types of changes in a short timeframe - to elicit an increased stress appraisal among employees (cf. stress-accumulation model), in turn leading to an increase in both coping behaviors of presenteeism and turnover intentions.

On the one hand, we expect an increase in change diversity will lead to an increase in turnover intent (as a form of emotion-focused coping) among employees. When employees feel they have no time to recuperate in between changes – over which they have no control - and perceive there is no foreseeable end to the changes, we expect employees will increasingly revert to emotion-focused coping strategies of avoidance, such as planning to leave the organization.

H1: Employees who have experienced more diverse workplace changes in the previous year will demonstrate increased emotion-focused coping, i.e. higher turnover intent.

On the other hand, we also expect to observe an increase in presenteeism behavior by employees (as a form of problem-focused coping) in settings characterized by high change diversity. However, this type of coping behavior will be more likely in those employees who feel they can do something to manage the situation of ongoing change. Presenteeism has already been found to increase as employees try to regain control in turbulent organizations settings. While it is an increasingly common issue that affects all types of workplaces, with recent UK statistics showing an average of 35 days per employee lost each year due to presenteeism (*Health at Work*, 2019), it seems particularly prevalent among public organizations (Jensen, et al. 2019). Interestingly, research found a high correlation between public service motivation and presenteeism, indicating civil servants are even more prone to display presenteeism behavior since they might feel an even greater obligation to go to work when feeling ill (Jensen, et al. 2019). Additionally, Jensen et al. (2019) found presenteeism to be an important mediating factor in the relation between PSM and the related phenomenon of absenteeism. Surprisingly, studies have not yet empirically related presenteeism behavior to change experiences, despite the growing recognition of the widespread importance of presenteeism, the established link between change intensity and the related phenomenon of absenteeism (e.g. Firms et al., 2006; Wynen, Verhoest, et al., 2019), and the key role of workplace conditions as instigators of presenteeism (Johns, 2010).

H2: Employees who have experienced more diverse workplace changes in the previous year will demonstrate increased problem-focused coping, i.e. presenteeism behavior.

As mentioned, whether people will turn to emotion-focused or rather problem-focused coping will largely depend on their appraisal of the changes they are experiencing, in particular whether they feel they have any control over the changes and their outcomes or not (Lazarus et al. 1984; Terry, 1994; Terry et al., 1996; Fugate, Kinicki & Scheck, 2002). Since prior

research indicates both forms of coping can emerge during organizational change (also pointing at the relevance of situational and personal characteristics), we expect to see an increase in both types of coping behaviors as change diversity – and concurrent stress appraisals – increase. Moreover, literature indicates both coping behaviors could be linked, since studies found presenteeism to be a potential precursor of absenteeism (Jensen et al., 2019). In turn, an increase in absenteeism can eventually lead to increased turnover behavior (e.g. Cohen & Golan, 2007).

Our contribution to the public sector change literature is twofold. First, by examining the impact of increasing change diversity on two distinct coping behaviors - turnover intentions and presenteeism behavior - we can gain a better understanding of how employees deal with the increasing prevalence of change in public organizations and how this impacts the coping behavior they resort to. A second contribution of this study is of a methodological nature. While this is not the first study to provide empirical evidence for the negative effects of stress and uncertainty in a context of change diversity, an important and yet unaddressed methodological challenge relates to the isolation of the change diversity effect from other organizational factors. When we measure the effect of change diversity, are we actually observing the effect of said change or are we observing the effect of pre-existing organizational problems that might have been the cause for implementing these diverse changes in the first place? In order to isolate the effect of change diversity from those of the pre-existing problems we make use of a matching approach. In the following section, some more detailed information is provided regarding the matching technique.

3 Estimation Strategy

Organizational change is often introduced to alleviate existing organizational problems (Brunsson, 2006). Therefore, malfunctioning organizations have a higher likelihood to

experience change (and the more widespread perceived problems are, the more likely that more diverse changes will be implemented). Previous studies have failed to isolate the effect of change diversity from those of the pre-existing problems that said change was implemented to solve. To solve this issue, we make use of a matching approach (e.g., Dehejia & Wahba, 1999; Heckman, Ichimura, Smith, & Todd, 1998; Czarnitzki & Lopes-Bento, 2014).

While there is no requirement to make any assumptions regarding the functional form and the distribution of the error terms, the matching approach only controls for observed heterogeneity among those individuals having experienced a wide array of diverse changes over a limited period of time and those who did not. To address this, we did not simply compare those having experienced highly diverse change with all individuals that have not experienced such change. Instead, we compare them only with a selected group that has similar characteristics. Our problem can be described by the following equation:

$$E(\alpha) = E(Y^R|T = 1) - E(Y^P|T = 1) \quad (1)$$

where Y^R represents the current, observed outcome variables (presenteeism and turnover intentions); and T refers to the treatment, whereby $T=0$ means that an individual did not experience a wide array of diverse changes, while $T=1$ means that they did. As evident, equation (1) only includes those individuals who experienced a high change diversity ($T=1$). Finally, Y^P is the potential outcome if the individuals who experienced highly diverse change ($T=1$) would not have endured these events. The difference between the current, observed outcome, and the potential outcome reflects the effect of a high change diversity. However, the difficulty is that $E(Y^P|T = 1)$ cannot be observed and is a counterfactual situation that has to be predicted. The easiest solution would be to compare outcomes from individuals having experienced an array of diverse change events over a short period of time with those who did not. However, as discussed, one can assume that such change is not randomly assigned. For

instance, employees in malfunctioning organizations will be more likely to endure organizational changes compared to employees in effective, efficient ones. Later in this paper, the section ‘Variables used in first phase of propensity score matching’ offers a more detailed discussion of the used variables.

Due to this selection bias, we assume the following:

$$E(Y^P|T = 1) \neq E(Y^R|T = 0) \quad (2)$$

Hence, it is impossible to simply use the average presenteeism behavior and turnover intentions from those individuals who did not endure highly diverse change to predict the counterfactual situation (Czarnitzki & Lopes-Bento, 2014). This selection bias can only be overcome if both treated and non-treated individuals have the same likelihood of experiencing the treatment (highly diverse change events over a short period of time). This refers to the conditional independence assumption (CIA), which means that the treatment and the potential outcome are independent for individuals with the same set of exogenous characteristics (X ; Aerts & Czarnitzki, 2004). If the CIA holds, it means that the difference between outcomes (presenteeism and turnover intention) will not be linked to specific characteristics (e.g., caused by the malfunctioning organization), but can be attributed specifically to the treatment (experiencing highly diverse change over a short period of time). When the CIA assumption is fulfilled, it follows that:

$$E(Y^P|T = 1, X) = E(Y^P|T = 0, X) \quad (3)$$

When applying this to our problem and initial equation, we see that the treatment effect can be written as:

$$E(\alpha) = E(Y^R|T = 1, X = x) - E(Y^P|T = 0, X = x) \quad (4)$$

By conditioning on X , we eliminate selection bias caused by observable differences between employees having experienced highly diverse change events and those that did not experience such change.

To estimate the effect of a high diversity of change over a short time period on presenteeism and turnover intention, we rely on caliper matching. Each individual who experienced an highly diverse change is paired with the closest individual who did not experience such changes. The linking of individuals is built on the similarity of the probability of experiencing a high change diversity. We calculated a propensity score after a logit estimation on the dummy, indicating if one has experienced diverse changes or not. In this way, we are available to avoid the “curse of dimensionality” as we use an index as the matching argument (Rosenbaum & Rubin, 1983). An index decreases the number of variables in the matching function, making it easier to create pairs but accounts for several matching arguments.

Moreover, we calculated the minimum and maximum of the propensity scores of the potential control group and deleted those observations with probabilities higher than the maximum and lower than the minimum in the control group.

To avoid “bad matches,” we set a maximum distance between the treated and control group. This maximum is also called a “caliper.” When a distance exceeds this maximum distance, the treated observation is dropped from the sample to avoid bias (see also Czarnitzki and Lopes-Bento, 2014).

4 Data and Variables

The research context is the Australian Public Service (APS), the federal civil service of the Commonwealth of Australia which comprises all departments and agencies where staff members are employed under the Public Service Act of 1999. The Australian context provides an interesting setting to study the effect of change diversity on employee outcomes. Through

the APS Reform Committee, there is a constant emphasis on rethinking the role of government and the need for change (Chowdhury and Shil, 2017). In its 2013-2014 State of the Service Report, the Australian Public Service Commission noted that organizational change has become a pervasive characteristic of APS organizations (APSC, 2014). In 2013, the amendments to the Administrative Arrangements Order resulted in widespread structural and functional change for dozens of organizations, affecting more than 13,000 employees in the process (APSC, 2014).

We rely on data from the APS 2014 employee census (which includes responses from 99,392 employees from 89 public agencies). The survey captures attitude and opinion data on important issues such as wellbeing, innovation, leadership, learning and development, and the engagement of the APS workforce (APSC, 2014). The 2014 wave of the census offers a unique glimpse into the diversity of workplace changes experienced by civil servants combined with detailed information about the individual (more recent survey waves include much less individual-level information). While surveys are often directed at top- and middle management level and biased towards particular types of organizational changes (Demircioglu & Audretsch, 2019), the APS census was sent to employees at all job levels and captures a wide variety of change ranging from machinery of government changes to a change in work priorities.

The sample was compared to the overall APS population on gender, classification, location, and employment category, and no significant difference could be detected.¹ This sample was further reduced to 76,375 observations due to item non-response. Although such a large sample size can have its advantages, it can also lead to erroneous results. A large sample size is likely

¹ Information on the survey methodology is available at <http://www.apsc.gov.au/publications-and-media/current-publications/state-of-the-service/state-of-the-service-2013-14/appendices/survey-methodologies>

to make the standard errors extremely small, in turn making even minuscule distances between the estimate and the null hypothesis statistically significant (Lin, Lucas, & Shmueli, 2013). To avoid mislabeling results as statistically significant, we relied on a randomly selected sample of 10% from the available observations. To ensure that item-non response did not introduce any bias, a chi-square goodness of fit test was conducted to test differences between our random sample (7,634) and the initial, representative dataset (99,392 employees), and no significant differences were observed.²

Table 1 near here

Within our sample, 26% of employees did not experience a workplace change in the previous year. Table 1 illustrates the distribution of the changes experienced for the remaining 74% of employees. When looking at this table, it is clear that when experiencing a change, employees were most likely to be confronted with a decrease in staff numbers (67%), closely followed by a structural change (56%), and a change in supervisor (46%). Moreover, the table also demonstrates that most employees experienced these changes in combination with other type(s) of workplace changes.

Measuring Change Diversity

For our subsequent analyses, we regard experiencing more than four different types of workplace change during 12 months as a high change diversity. This diversity of change means that, on average, a civil servant experienced a different change, less than three months apart. Note that some employees experienced up to 11 different changes per year. By creating a cut-off point of experiencing at least five different workplace changes per year, we believe that the individual is deprived of the necessary time to recover from each stressful change event. A

² For instance, we tested for Gender ($\chi^2(1)=1.72$), Age ($\chi^2(3)=.71$), Classification level ($\chi^2(1)=.01$), and Having experienced an organizational change in the past year ($\chi^2(1)=.01$)

dummy reflecting this pace of change (0= none or less than five changes/year and 1= more than four changes/year) was therefore used as an indicator of highly diverse change or not. In total, our sample consists of 7,634 civil servants, of which 5,661 (74%) have experienced at least one workplace change. Additionally, 1,898 civil servants in our sample (24.9% of all APS employees or 33.5% of those employees who experienced workplace changes) experienced highly diverse changes. Not all change is equal, some types of change will have a stronger impact on individuals and consequently lead to stronger negative side-effects. This is an issue we cannot account for as it purely depends on an individual's evaluation of change, making it impossible to make general claims (Wynen et al., 2019). For instance, it is impossible to state whether a change in work priorities leads to stronger negative feelings compared to a change in supervisor or even a machinery of government change. For what follows, we therefore consider all change events as equal and purely focus on the diversity of change.

Measuring Presenteeism and Turnover Intention

Presenteeism is measured using the following question; "How many days during the last fortnight (the last 75 working hours/ 2 week pay period) did you go to work while suffering from health problems?" The respondents were given the possibility of answering none, one, two, three, or more than three. Turnover intention is a dummy reflecting the intention to leave the current organization (0 = I want to stay working for my agency for the next one to two years or I want to stay working for my agency for at least the next three years; 1 = I want to leave my agency as soon as possible, or I want to leave my agency within the next 12 months, or I want to leave my agency within the next 12 months but feel it will be unlikely in the current environment).

Figure 1 near here

The relationship between the number of different types of workplace change, presenteeism behavior, and turnover intention is visually explored in Figure 1 using polynomial smoothed lines. Scatterplot smoothing, also called univariate nonparametric regression, is very interesting as it does not require assumptions about the functional form for the expected value of a response given a regressor, but instead allows the data to “speak for themselves.” Based on Figure 1, it is clear that an increase in the different type of changes experienced lead to both strong increases in turnover intention and presenteeism behavior. Moreover, the figure offers a good overview of change diversity (the different types of workplace changes civil servants within the APS experienced over one year).

Variables used in First Phase of Propensity Score Matching

In this first step, we create equal likelihoods of experiencing diverse changes between respondents within both groups (those who did not experience diverse changes and those who did). This is important as it allows to exclude the drivers of experiencing a wide array of changes as the source for presenteeism behavior and turnover. To do so, we included multiple variables that can affect the likelihood of experiencing workplace changes.

First, we included each employee’s perception of the agency’s working environment. The APS survey includes a section ‘General impressions: Agency’, in which respondents were asked to rate their level of agreement with statements a wide range of underlying concepts ranging from change management to the culture of the work unit. The variable used in the analysis is a factor score based on a total of 23 questions (which are reversed coded) regarding the agency’s working environment. The full list of variables, factor loadings, and eigenvalues is available in the Appendix (Table 9). The higher the score, the less satisfied the employee is with the agency’s working environment. An drawback of this cumulative approach is the relative lack of substantive coherence. However, we want to point out here that the index does have

coherence: not in the sense that it captures items related to similar processes (e.g. performance management, change management) or actors (e.g. leadership, colleagues), but in the sense that it captures an underlying overall sentiment towards the organization (Lee & Van Ryzin, 2019). It is the sentiment that connects the items (as shown by the satisfactory factor loading) and which is expected to reflect a widespread negative perception towards the organization across organizational processes. Given that employee dissatisfaction with the current state of affairs is recognized as an important instigator of change (Brunsson, 2006; Fernandez & Rainey, 2006; Kets de Vries and Balazs 1999; Nadler and Nadler, 1998), we expect that more widespread dissatisfaction across organizational processes will be related to more diverse changes.

In addition, several control variables were introduced. The agency's functional cluster was included to account for the primary functions of the organization. This includes specialist organizations providing specialist support to government, regulatory organizations involved in regulation and inspection, policy organizations involved in the development of public policy, smaller operational organizations with less than 1,000 employees involved in the implementation of public policy, and finally, larger operational organizations with 1,000 employees or more involved in the implementation of public policy. Finally, and as we rely on an individual's perception of change, we control for individual characteristics such as gender, education (Year 12, Vocational, Tertiary), and the classification level of each respondent (Trainee/Grad/APS1-6; EL/SES).

Descriptive Statistics

Table 2 near here

The descriptive statistics of these variables are presented in Table 2. Based on this table, it is evident that the means of almost all of the variables (except for gender) are significantly

different between the group of individuals having experienced highly diverse change and the group of employees who did not. For instance, there appears to be a significant difference in the perceptions regarding the agency's working environment. The factor score seems to be significantly higher for those who experienced a high change diversity during the previous year. Note that the items are reversed coded, and a higher score reflects higher discontent. Civil servants who endured highly diverse changes are consequently more malcontent regarding their working environment compared to those who did not experience these changes.

Interestingly, the agency cluster, as well as the education and classification level of the respondent, seem to differ between groups. On average, a higher percentage of employees within organizations that are involved in the development of public policy experience complex change processes compared to employees in organizations with different tasks. Furthermore, a similar trend can be observed for the classification and education level. This is possibly related to the role of the agency cluster. With regards to the presenteeism behavior and turnover intention, it appears at first sight that more employees will go to work while sick (significant difference of approximately 10%) and will have a higher turnover intention (significant difference of 9.1%) when experiencing a high change diversity. The application of the propensity score matching estimator in the next section will reveal if and to what extent these differences can be attributed to the diversity of change.

5 Results of the Propensity Score Matching Estimator

To test the significance of the difference in presenteeism behavior and turnover intentions, we make use of the matching strategy, as discussed in section 3. A first step in applying this technique involves running a logit model to obtain the predicted probability of enduring highly diverse change. The results (odds ratios) are presented in Table 3. In line with Table 2, cluster, education, and classification level appear to significantly affect the likelihood of experiencing

highly diverse change. However, and in line with the literature, feelings regarding the agency's working environment appear to play a pivotal role. This index appears to be a strong indicator of experiencing a high change diversity.

Based on the estimated propensity scores (notice the significant difference in Table 2), the nearest neighbor is selected out of the potential control group for each individual who experienced a high change diversity (i.e., treated individuals).

Table 3 near here

Figure 2 near here

The Kernel density estimations of the matching arguments, the propensity scores, and perceptions regarding the working environment, before and after the matching, are presented in Figure 2. When focusing on both variables before the matching procedure, we notice their distributions are not similar across both the treatment and control group and appear to differentiate strongly. As previously explained, a necessary condition for the validity of the matching procedure is common support. To satisfy this condition, one treated observation was excluded as no common support was found. After the matching procedure, we notice that the distributions of the propensity score and the impressions regarding the organizational environment are more closely aligned across employees having experienced highly diverse changes (treated) and those who did not experience this (control). Both groups of employees are now well balanced with respect to the matching arguments after performing the estimation (see Table 4). No significant differences exist in our covariates and especially not in the propensity score. When looking at our main variables of interest, presenteeism behavior, and turnover intention, we notice that their values remain significantly different across both groups; differences that can be assigned to the treatment (experiencing a high change diversity over the

period of one year). On average, 10% more employees have gone to work while sick in a situation of highly diverse change compared to a situation without such organizational changes. Moreover, it is also clear that employees experiencing highly diverse change will also go to work while sick more often (e.g., more than three days; 11.7% versus 16.1%). The effect is less pronounced for turnover intention. The difference between both groups remains significant; however, the gap is reduced to approximately 3%. This means that, on average, 3% more employees are willing to leave the organization when experiencing highly diverse change. One possible explanation for the smaller effect on turnover intention could be that this measure is more indirect compared to presenteeism behavior. Within the literature, going to work while being sick is often regarded as a predecessor for exhaustion, burnout, and eventually turnover (Crawford, LePine, & Rich, 2010). Given that we only take into account the organizational changes employees experienced in the previous year, it is likely that the effect on turnover takes more time and is consequently less visible in our current analysis. Overall, we can conclude that a high change diversity leads to increased presenteeism behavior and higher turnover intentions.

Table 4 near here

For the ease of interpretation we also ran standard OLS regressions with robust standard errors. These led to similar results. Experiencing change diversity (leads to an increase in the presenteeism behavior ($\beta=.29$) and an (although smaller) increase in turnover ($\beta=0.023$). These findings are in line with the matching results, and confirm that a high change diversity leads to increased presenteeism behavior and higher turnover intentions.

Table 5 near here

Robustness Check

One could make the case that the above findings are because the selected control group will also exist of several employees who did not experience a single organizational change. Hence, it is difficult to distinguish if the observed differences, although significant, reflect the disruptive effects that are linked to organizational change in general that are expected to fade away or to highly diverse changes. Do the effects hold when we only compare those individuals having a wide array of diverse changes with those who did not experience highly diverse change but organizational changes nonetheless? To test this, we considered individuals who experienced organizational changes in the previous year and removed the individuals who did not experience any organizational change in the past year.

Table 6 near here

The descriptive statistics for this sample are presented in Table 6. The differences between both the treated and control group are similar to those in the full sample. When running the logit model (table 7), we notice comparable results. The agency cluster, employee's classification, education level, and, most importantly, the feelings regarding the working environment affect the likelihood of experiencing highly diverse change.

Table 7, 8 near here

Figure 3 near here

The matching procedure results again in matched samples that are well balanced (Table 8, Figure 3). When reviewing the outcome variables, we notice that the treatment effects are smaller than those in the initial sample. This specifically holds for presenteeism behavior. We notice that the treatment effect drops from approximately 10% to 7% for those individuals going to work while sick. When looking at the number of days, we notice that employees experiencing highly diverse change are still more likely to spend more days at work while sick.

However, the differences decrease (e.g., for three or more days from 4.4% to 2.9%), and the difference in turnover intention remains small but is stable across both samples.

6 Discussion and Conclusion

The main ambition of this study was to examine the effect of change diversity experienced by public sector employees on their likelihood of demonstrating turnover intent and presenteeism behavior. Practitioners and scholars of public sector change have recently started to recognize that changes are rarely implemented on a blank slate (Spicer, 2018; Wynen, Verhoest, et al., 2019). Most countries have engaged in successive, and to some extent contradictory, reform waves over the years (Pollitt & Bouckaert, 2017). As a result, public sector organizations have been exposed to diverse change experiences. While the dominant rhetoric continues to see such changes as necessary instruments to adapt public organizations to fast-changing environments, scholars taking a psychological perspective point at the potentially negative individual and organization-level effects of intense changes (Rafferty & Griffin, 2006). This study builds on a growing body of work that has pointed at change diversity as a key component of such intensity, using an innovative methodological approach to isolate the effect of change diversity from pre-existing organizational problems on two negative outcomes: increased turnover intent and increased presenteeism behavior.

Both turnover intent and presenteeism behavior are considered as behaviors to cope with stressful and uncertain work environments (Lazarus & Folkman, 1984), the first through distancing oneself from this environment in an attempt to deal with negative emotions (turnover intent) and the second through regaining control by facing the increased workload and uncertainty; even whilst being ill (presenteeism). Our findings offer support for the expectation that both types of coping increase in settings of change diversity. For turnover intent, these observations fit with former studies that found employees to be more likely to consider leaving

their organizations as they perceived changes more skeptically (Boon et al., 2020; Fugate et al., 2012; Rafferty & Griffin, 2006). This study contributes to these studies by showing that these findings hold when taking a non-affective measure of change diversity (“which changes did you experience?” rather than “how did you feel about particular changes?”). For presenteeism, this study is the first to offer rigorous empirical evidence for the change-presenteeism link, contributing to existing findings that have retrieved this link for the related phenomenon of absenteeism (Firms et al., 2006; Wynen, Verhoest, et al., 2019), and considered the key role of workplace factors for presenteeism behavior (Johns, 2010).

There are two main contributions of this study. At the level of theory, the main contribution of this article lies in its support for the stress-accumulation model, which suggests that change intensity leads to an accumulation of stress and uncertainty that negatively affects employees’ coping resources (Moore et al., 2004; Wynen, Boon, et al., 2019). Authors have argued that the stress-accumulation model is particularly valid in settings where employees experience different types of changes. Such settings require employees to more frequently re-assess the potentially threatening aggregate impact of different changes (Dougall et al., 2000). To our knowledge, this study is the first to rigorously isolate the effect of experienced change diversity on two types of coping behaviors (turnover intent and presenteeism).

The second contribution of this study is situated at the methodological level. Although several studies had examined the negative effects of intense change in the public sector (e.g. Wynen et al., 2017; Homberg et al., 2019; Kleizen et al., 2018), it remained unclear if effects could be attributed to the intensity of change. Pre-existing organizational issues (e.g., low performance or mismanagement) may have been the cause of both an intense change history *and* the observed negative outcomes. Using data from the APS 2014 employee census, we conducted

a matching procedure to answer this question. This econometric approach is used to estimate the following counterfactual situation: “What kind of behavior would an employee who experienced diverse change have demonstrated if he/she did not experience such change?”. Using this type of econometric strategy allowed us to disentangle the effects caused by pre-existing problems and those caused by change diversity, making it possible to make empirical claims regarding the impact of diverse changes on civil servants. Interestingly, our results revealed that the problem is nuanced; pre-existing problems cause presenteeism and turnover, however, when organizations start to (over) react (and thus start implementing changes), it actually makes the problem worse.

This study comes with several limitations and research implications. First, while our quantitative research design allows to establish the effect of change diversity on presenteeism and turnover intentions, it cannot shed light on the mechanisms and processes that connect our independent to our dependent. While our theoretical arguments are based on validated research, future research should include other methods (experiments, process tracing, qualitative approaches) to disentangle the precise mechanisms that establish the effects found in this study. Second, the APS survey data were uniquely suited to apply the propensity score matching estimator technique. However, we are limited to a single research context (Australian Public Service). This could be problematic from a generalization point of view. For instance, turnover intentions may be affected by contextual factors such as the rigidity of the labor market (Grinza, 2014). Third, our study is based on a cross-sectional design and is therefore susceptible to specific methodological limitations. For instance, cross-sectional designs do not allow the inclusion of lagged effects. As discussed, the effect on turnover intentions is significant but rather low, a finding which we believe can be explained by the fact that the effect of change diversity on turnover is more indirect (compared to its effect on presenteeism behavior). Panel

data would offer a more detailed insight into this relationship, but would also allow to examine how much time it takes for organizations to recuperate from in between change episodes.

The study also has considerable implications for practice. The results call for a more nuanced view of workplace changes. Although workplace changes can potentially lead to increased efficiency or effectiveness, these benefits should be weighed against potential harmful effects such as presenteeism and increased turnover intentions. Given that public organizations need to adapt rapidly to changing external demands and challenges, the ability to effectively manage change has become crucial. This argument becomes even more important when taking into account the potentially negative psychosocial effects of unmanaged or poorly managed change. This article adds to larger debates on the effects of organizational changes and how government can become more agile. In no way are we implying that organizational change should be avoided altogether or that change will always result in detrimental effects on the organization and its employees. Plenty of examples show the necessity of change and its potential to transform government in a positive way. However, we should not be blind for potential negative effects either. Organizations should take care to avoid quasi-permanent, or even simultaneous, change episodes. Employees need time to recover from potential uncertainty and stress brought about by change. The occurrence of diverse types of changes in a short time interval prevents such recovery and may well lead to unintended effects. Finally, it is important to note that we discussed two maladaptive forms of emotion- and problem-focused coping, however, as noted by Noblet et al. (2006), providing training on more productive forms of problem-focused coping can increase civil servants' resources to adequately cope with change.

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