

# Development of Organizational Citizenship Behavior and the Effect of Psychological Contract Fulfillment

*A Multilevel Longitudinal Study*

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## Abstract

Despite decades of empirical research on organizational citizenship behavior (OCB), its dynamic and relational aspects are still not fully understood. This study extends the literature on OCB through the use of random coefficient modeling to examine how OCB develops over time and whether this development can be predicted by psychological contract fulfillment. The current study utilizes longitudinal data from individuals from a variety of organizations ( $N = 168$ ), with five measurement waves collected on a monthly basis. The results show a significant within-person variability in both initial status and rate of change, which suggests that individual OCB develops over time and that individuals differ in their development. However, no common trend of development was found for all subjects. Both between-person and within-person variability in psychological contract fulfillment successfully predicted between-person differences in OCB but failed to predict the intraindividual development over time. Overall, these results support the assumption that OCB can be considered as a dynamic construct. However, more research is needed to gain a better understanding of OCB relates to psychological contract fulfillment over time. The results are presented and discussed, along with implication for theory and future research.

*Keywords:* development; organizational citizenship behavior; psychological contract fulfillment; random coefficient modeling; time



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## **Introduction**

During the last couple of decades, organizational citizenship behavior (OCB) has received a rapid increase of interest and has become one of the most widely studied constructs within organizational psychology (N. P. Podsakoff, Whiting, Podsakoff, & Blume, 2009; P. M. Podsakoff, MacKenzie, Paine, & Bachrach, 2000). OCB refers to work behavior that enhances organizational efficiency by supporting the social and psychological environment of task performance (Organ, 1997). These behaviors are more discretionary and less explicitly tied to formal organizational rewards than task behaviors, and include behavior such as helping colleagues, passing along information and adherence for informal rules (Williams & Anderson, 1991).

Given the potential benefits of such behaviors, there has been an extensive number of studies trying to identify its antecedents and outcomes (P. M. Podsakoff et al., 2000). However, despite decades of research, the dynamic and relational aspects of OCB are still not fully understood. The majority of research has been cross-sectional, mainly focusing on between-person differences at a given point in time (Bolino, Harvey, & Bachrach, 2012). Although there have been several calls for longitudinal research on OCB (Bergeron, 2007; Bolino et al., 2012; Sturman, 2007), no studies have yet examined the intraindividual development of citizenship behavior over time. This can be considered as problematic for at least two reasons. First, OCB is considered to be a dynamic construct, as employees can increase or withhold their behaviors at different points in time (Bolino et al., 2012). Second, to be able to predict future citizenship behavior it is necessary to have a deeper understanding of how individual engagement in OCB develops over time and how this development is related to other variables. The lack of knowledge about the development in OCB may partly be attributed to the numerous analytical and methodological issues related to longitudinal research. However, recently developed analytical techniques have provided new means to examine development over time (Singer & Willett, 2003). The first aim of this study is, therefore, to contribute to the understanding of the dynamic nature of OCB, by exploring the direction and shape of individual development of OCB over time.

Employee engagement in organizational citizenship behaviors has traditionally been theorized as an act of reciprocity for the treatment employees receive from the organization (Konovsky & Pugh, 1994). This implies that employees' engagement in OCBs is dependent on the actions of their employer. Consistent with this assumption, several studies have found a positive relationship between OCB and psychological contract fulfillment (e.g., Newton,

Blanton, & Will, 2008; Robinson & Morrison, 1995; Shih & Chen, 2011; Turnley, Bolino, Lester, & Bloodgood, 2003; Yeh, 2011)

The psychological contract refers to individual beliefs regarding the mutual obligations between the employee and the organization, which are outside the legal employment contract (Freese, Schalk, & Croon, 2011; Raeder, Wittekind, Inauen, & Grote, 2009; Rousseau, 1989). From the employee perspective, psychological contract *fulfillment* (PCF) refers to whether the employer provides the employee with the expected inducements (Chaudhry, Wayne, & Schalk, 2009). Such inducements may include loyalty, interesting work tasks, and opportunities for a career in the organization (Raeder et al., 2009). The positive relationship between PCF and OCB is often taken as evidence for a reciprocal interplay between the employer and the employee (Coyle-Shapiro & Parzefall, 2008). However, the dynamic aspect of this relationship has not been examined over time. This is an important limitation, as between-person relationships can be substantially different on the within-person level (Bergeron, 2007; Bolino et al., 2012; Lord, Diefendorff, Schmidt, & Hall, 2010). The second aim of this study is, therefore, to examine whether differences in psychological contract fulfillment can predict differences in individual development in OCB over time.

The present study uses longitudinal data and random coefficient modeling (RCM) to examine individual development in OCB and how this development relates to PCF over time. This examination will be done at two levels of analysis and will, therefore, be presented in two separate sections in the current thesis. Given the complexity of the methodological approach, there will also be an introduction to the basic concepts of longitudinal research and RCM. The present study makes two important contributions to the OCB literature. First, it will be one of the first studies to examine the dynamic nature of OCB over time. With a longitudinal approach this study gives a valuable insight into the form and direction of intraindividual development in OCB. Second, this study will contribute with knowledge about how the relationship between OCB and PCF evolves over time. This relationship has been extensively studied in previous research, but the present study will be one of the first to examine the development of this relationship over time. The present study will, therefore, be able to contribute with both methodological and theoretical insight into the growing body of research on OCB and its relationship with PCF.

### **Longitudinal Study of Development**

There are two fundamental questions in any study of development (Singer & Willett, 2003). First, how does the outcome variable develop over time? Second, is it possible to

predict differences in this development? To be able to answer these questions, it is necessary to include the role of time by obtaining longitudinal data collected from the same individuals (Singer & Willett, 2003). Longitudinal research refers to studies with an explicit emphasis on development, consisting of *at least* three measurement waves, which are conducted at appropriate time intervals (Ployhart & Vandenberg, 2010; Singer & Willett, 2003). Longitudinal studies are often associated with numerous theoretical, methodological and analytical issues, which has resulted in an overreliance on cross-sectional results within the field of organizational psychology (Ployhart & Vandenberg, 2010; Sturman, 2007). However, recently developed multilevel growth modeling techniques have provided interesting opportunities to investigate development. One of the most prominent approaches is random coefficient modeling (RCM), which is based on random coefficient equations and allows the researcher to examine both between-person and within-person variance (Bliese & Ployhart, 2002). RCM distinguishes between Level-1 and Level-2 submodels of development, where the first level refers to the intraindividual development in the outcome variable, and the second level refers to the interindividual differences in this development (Singer & Willett, 2003). This means that RCM can be used to examine how OCB develops over time (i.e., Level-1 analysis) and how PCF predict differences in this development (i.e., Level-2 analysis). These levels of development will be further presented and discussed in two separate sections of this thesis, beginning with the development in OCB.

### **Level-1: Within-Person Development in Organizational Citizenship Behavior**

The aim of the level-1 analysis is to examine whether individuals develop in their engagement in OCB over time. In the following sections, the concept of organizational citizenship behavior will be presented, followed by a discussion of different theoretical assumptions about its development. Further, previous research will be discussed regarding methodological limitations, before Hypothesis 1 will be presented.

### **Organizational Citizenship Behavior**

**Concept.** OCB was first formally defined by Organ in 1988 as “individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and in the aggregate promotes the efficient and effective functioning of the organization” (Organ, Podsakoff, & MacKenzie, 2005, p. 3). This definition includes both behavior- and outcome aspects and implies that citizenship behaviors are 1) *discretionary*, and thus not a part of the formal job requirement, 2) not directly connected to formal rewards, and 3) beneficial for

organizational efficiency. This definition is still frequently referred to but has received several critical remarks (Organ, 1997). Critics have claimed that some employees might perceive elements of OCB as more or less part of their job, making the lines between discretionary behavior and job requirements less clear. Another critique is that several organizational rewards are not contractually guaranteed by the formal reward system (e.g., promotion), and can be a beneficial outcome of engagement in OCB (Organ, 1997). Organ (1997) answered this criticism by redefining OCB as “behaviors that are contributing to organizational efficiency by supporting the social and psychological environment where task performance take place” (p. 95).

**Dimensionality.** Despite the growing body of research on OCB, there is still a lack of consensus regarding its dimensionality (B. J. Hoffman, Blair, Meriac, & Woehr, 2007). P. M. Podsakoff et al. (2000) argue that this lack of consensus may be attributed to researchers’ emphasis on identifying potential antecedents and outcomes, rather than defining the nature of OCB itself (p. 516). However, some of the most commonly used dimensional frameworks are those developed by Smith, Organ, and Near (1983) and Williams and Anderson (1991) (N. P. Podsakoff et al., 2009).

The idea of OCB can be traced back to Katz (1964) who pointed out a set of discretionary behaviors he meant were essential for organizational effectiveness. Smith et al. (1983) conceptualized these behaviors as “organizational citizen behaviors” and suggested a two-dimensional framework, consisting of *altruism* (e.g., helping other individuals) and *generalized compliance* (e.g., abiding general laws, norms, and rules). Organ (1988) deconstructed generalized compliance and expanded the taxonomy of OCB to include *altruism*, *civic virtue* (e.g., participation in meetings, offering suggestions to improve operations), *conscientiousness* (e.g., abiding rules and procedures), *courtesy* (e.g., being polite and considerate of others) and *sportsmanship* (e.g., not complaining about trivial matters).

On the contrary, Williams and Anderson (1991) argued that OCB should be organized based on the *direction* of behaviors, rather than content. Mainly grounded in Organ’s (1988) dimensions, they suggested a two-dimensional framework consisting of OCB-I and OCB-O. OCB-I refers to beneficial behaviors directed at other individuals in the organization, as helping other colleagues and assisting supervisors without being asked, while OCB-O refers to behavior that benefits the organization in general, including adherence to informal rules and attendance at work above the norm (Williams & Anderson, 1991). The distinction between OCB-O and OCB-I have been supported by factor analysis and have been shown to relate to different antecedents (e.g., Turnley et al., 2003; Williams & Anderson, 1991). Given

the increased emphasis on teamwork and collaboration in today's organizational life, this study focuses specifically on the behaviors directed at other individuals in the organization.

### **Theoretical Foundation for Development in OCB**

The between-person differences in OCB have traditionally been explained in terms of social exchange theory (Cropanzano & Mitchell, 2005), but recently, several alternative theoretical frameworks have been developed in the attempt to explain its dynamic nature. Some of these frameworks are based on self-regulation theory (Lord et al., 2010), with the underlying assumption that citizenship behaviors are motivated behavior. Both of these approaches will be discussed further in regards to how OCB develops over time, and how individuals differ in this development.

**Social Exchange Theory.** Because of its discretionary nature, OCB has traditionally been seen as one of the core outcomes of social exchanges in the employment relationship (Cropanzano & Mitchell, 2005). According to social exchange theory (Blau, 1964; Holmes, 1981) such exchanges are based on initiated and voluntary actions by either employer or employee and the expectation that the other party will eventually reciprocate these actions. If one party does not meet their obligations the imbalance in the exchange relationship will force the other party to either increase or withhold their efforts to restore equivalence (Konovsky & Pugh, 1994). By following this argument, employees are expected to regulate their engagement in OCB relative to what they receive, or want to receive in the future, by their employer. Organ (1987) argued that employees can choose to engage in OCB to reciprocate good or fair treatment from the organization or withhold such behavior if they feel unfairly treated. This implies that organizational citizenship behavior develops as an effect of social exchanges between employees and their employers. However, SET does not make any suggestions to how this development evolve over time or how this development differs between individuals (Bolino et al., 2012; Cropanzano & Mitchell, 2005).

**Self-regulation Theory.** Bolino et al. (2012) argued that SET cannot sufficiently explain the cognitive, affective and unconscious processes that underlies the dynamic nature of OCB. To encounter this, Bolino et al. (2012) developed a theoretical framework with an explicit focus on the intraindividual development in OCB. They conceptualized engagement in OCB as an ongoing process that is highly influenced by employees' self-concept orientations. *Self-concepts* refers to schemas containing individual's perceptions about their attributes, social roles, and goals. These self-concepts can vary in their *orientation*, as individuals tend to think of themselves as autonomous individuals (i.e., individual

orientation), in relationships with others (i.e., relational orientation) or as a part of a larger group (i.e., collectivistic orientation). These orientations can be more or less trait-like (i.e., chronic orientation) or triggered by situational cues (i.e., working orientation). *Chronic orientations* can be seen as relatively stable, with a gradual development over time, while *working orientations* can be seen as temporally activated self-concepts, causing fluctuating changes in the individual's motivation to engage OCB.

Bolino et al. (2012) argue that self-concept orientations implicitly affect individual development in OCB, as they highly affect *what* types of citizenship behaviors individuals engage in, *when* they decide to perform them and *when* they decide to modify their behavior. For example, they propose that employees with an individual self-concept orientation (i.e., either working or chronic) will be motivated to engage in OCB because of *impression management motives*, using OCB as a form of leverage to get what they want. Employees with a relational self-concept orientation will be more motivated by *prosocial motives* and will, therefore, engage more in OCB directed at other individuals in the organization. Based on feedback from their organizational environment, choices are made, planned, executed and evaluated in cycles over days, months or even years. These cycles will lead to both short-term fluctuations and long-term development in self-concept orientations, and thus also cause a development in the motivation for and engagement in OCB (Bolino et al., 2012).

The benefit of the self-regulation approach to OCB is that it explicitly focus on intraindividual development (i.e., chronic and working self-concepts) and why individuals might vary in this development (i.e., different self-orientations). However, considering the lack of longitudinal studies, the empirical grounding for these assumptions is scarce. In the following section, previous research on OCB dynamism will be discussed in terms of development and methodological issues.

### **Previous Studies of Change in OCB.**

The majority of research on OCB is cross-sectional, examining measurements of OCB at a given point in time. Although *time* is really a longitudinal issue (Ployhart & Vandenberg, 2010), several studies have implicitly modeled *change* in OCB by including time-relevant variables, separation of measurements or examined short-time fluctuations. Although these studies do not explicitly look at *development*, their findings suggest that it is reasonable to expect an intraindividual development in OCB. These results are further discussed, along with the methodical issues related to the applied designs in these studies.

**Time-relevant variables.** Change in OCB is often implicitly modeled in cross-sectional studies, by including time-relevant variables such as age, tenure, and experience. This is often done by dividing employees into cohorts based on variables such as tenure or experience, assuming that systematic variation in OCB over the different cohorts provides evidence for development in OCB over time. Another alternative is to examine whether the relationship between OCB and correlates are moderated by a time-related variable (Sturman, 2007). For example, Ng and Feldman (2011) conducted a meta-analysis which examined the moderating effect of tenure on the relationship between organizational commitment and OCB. They found that the relationship was stronger amongst employees with higher tenure. A meta-analysis by the same authors also found a positive, but curve-linear, relationship between tenure and OCB, where the relationship tended to become weaker as tenure increased from medium to high (Ng & Feldman, 2010).

Although such results suggest that individuals engage in different levels of OCB at various points in time, it is important to note that results from cross-sectional studies are merely based on between-person differences and do not yield information about *how* or *when* individual engagement in OCB develops over time. Further, between-person differences due to age, tenure, and experience cannot confirm a development over time, as there are several equally valid explanations for these differences (Singer & Willett, 2003). One such explanation might be that there are systematic differences between those who quit their job at an early stage and those who remain in the organization. For example, it could be that those employees who are more satisfied with their job engage in generally higher levels of OCB and have a tendency to remain in the organization longer than others (i.e., longer tenure).

**Separation of measurements.** Change in OCB has also been implicitly modeled in several cross-lagged studies. Although such studies frequently use the term longitudinal (e.g., Blakely, Andrews, & Fuller, 2003; Koys, 2001; Vigoda-Gadot & Angert, 2007), they mainly consist of only one or two measurements of each variable. The distinction from traditional cross-sectional studies is that measurements are separated in time, for example by measuring the predictor variable at one point in time and the outcome variable at another point in time. Alternatively, one or both variables are measured at both occasions.

For example, Hui, Lam, and Law (2000) measured OCB three months before and three months after a potential promotion. They found that employees who had an instrumental approach (i.e., evaluate the cost/benefit) were more likely to engage in higher levels of OCB before the promotion decision, and were more likely to reduce their citizenship behavior afterward, especially if they got the promotion. These findings suggest that employees with an

instrumental approach are more willing to regulate their engagement in citizenship behaviors to gain self-serving benefits. These results correspond to the proposals by Bolino et al. (2012), suggesting that situational cues can trigger working self-concept orientations, resulting in temporary development in their engagement in OCB.

Although the separation of measurements deals with common methods bias, it is not sufficient to qualify as a longitudinal study. If there is only one measurement of each variable, the results are comparable to the results from a cross-sectional study. The results from two waves of OCB can only be seen as marginally better than those from cross-sectional studies, as the development is conceptualized as the difference in scores between two measurement waves (Ployhart & Vandenberg, 2010; Singer & Willett, 2003). This difference in scores is by default linear, and can thus not say something about the shape of individual development and how it would develop further. Also, it cannot distinguish between change and measurement error, which may lead to an erroneous conclusion about development (Ployhart & Vandenberg, 2010; Singer & Willett, 2003).

**Short-time fluctuations.** Experience sampling methods (ESM) have frequently been used to examine how within-person fluctuations in OCB relates to momentary states as mood, recovery and episodic events. ESM is a form of diary design, where data is collected on a daily basis over short periods of time (Ohly, Sonnentag, Niessen, & Zapf, 2010). The advantage of this approach is that data can be collected in its natural setting (e.g., at work), close in time, and by repeated measurements (Conner, Tennen, Fleeson, & Barrett, 2009; Ohly et al., 2010). Additionally, these studies can yield valuable information about the momentary effects of situational cues, which potentially make individuals regulate their self-concept, and thus their engagement in OCB (Bolino et al., 2012).

Results from ESM studies suggest that fluctuations in OCB are related to several momentary affective states, such as positive affect (e.g., Ilies, Scott, & Judge, 2006; Lam, Weiss, Welch, & Hulin, 2009), gratefulness (e.g., Spence, Brown, Keeping, & Lian, 2014), and anxiety (Rodell & Judge, 2009). Also, several studies suggest that the daily level of OCB can be affected by the individual's available and allocated psychological, physical and emotional resources (Beal, Weiss, Barros, & MacDermid, 2005; Binnewies, Sonnentag, & Mojza, 2009; Minbashian & Luppino, 2014). Binnewies et al. (2009) argued that the state of *being highly recovered* in the morning would imply a high level of available resources to perform at work, in the form of higher energy, self-regulatory resources, and positive affect. In line with their predictions, they found that daily OCB was positively related to daily levels of recovery. Similarly, the state of being highly recovered at the start of the week have also

been found to be positively related to the engagement in OCB during the week (Binnewies, Sonnentag, & Mojza, 2010).

Although ESM-studies have a sufficient number of measurement waves, their analyses are most often based on correlations between variables in each measurement wave, instead of how these variables develop over time. In other words, these studies focus on within-person *change* in OCB, not within-person *development*. However, the results from these studies often demonstrate substantial within-person variability, suggesting that employees engage in different levels of OCB at different points in time. Dalal, Bhave, and Fiset (2014) conducted a preliminary analysis of available multi-wave studies of OCB and found that about 43 % of the variability could be attributed to within-person sources. Although these results may partly be biased by different methodological choices, the relative size of this variability is substantial enough to be considered as something more than measurement error (Dalal et al., 2014).

### **Predicted development in OCB**

Assuming that OCB develops over time, this development can hypothetically be linear or non-linear or take the form of cycles of increasing and decreasing values. It can also be event-driven and discontinuous, with a sudden change in elevation or slope (Dalal et al., 2014; Singer & Willett, 2003). Given the lack of research on the intraindividual development in OCB, the first hypothesis will be explorative in nature, rather than proposing specific forms of development.

As proposed by Bolino et al. (2012), social exchanges and contextual factors might work as social cues, triggering the activation of a working self-concept orientation and thus causing the individual to regulate their engagement in OCB. This regulation is also proposed to differ *between* individuals, as individuals have different self-concepts orientations and are exposed to different contextual cues in their work environment. Previous research has generally supported the assumption that individual engagement in OCB can be affected by several individual- and contextual variables (e.g., Binnewies et al., 2009; Dalal et al., 2014; Hui et al., 2000). Based on previous findings and theoretical assumptions, it is therefore expected that individual engagement in OCB develops over time and that this development will differ between individuals. More specifically, it is expected that:

Hypothesis 1: *There will be an intraindividual development in OCB, and individuals will differ in their development.*

## **Level 2: The Predictive Effect of Psychological Contract Fulfillment on OCB**

Several previous studies have found support for a positive relationship between PCF and OCB, suggesting that an increase in employer inducements would be followed by an increase in employee OCB (e.g., Newton et al., 2008; Robinson & Morrison, 1995; Shih & Chen, 2011; Turnley et al., 2003; Yeh, 2011). But these studies are mainly cross-sectional, which implies that their results can only explain between-person differences at a given point in time, not how the relationship between PCF and OCB evolve over time. The aim of the Level-2 analysis is, therefore, to examine whether interindividual differences in the development in OCB can be explained by differences in psychological contract fulfillment. In the following section, the concept of the psychological contract will be presented, following a discussion of different theoretical approaches. Finally, the relationship between PCF and OCB will be discussed in terms of development, before the Level 2-hypotheses are presented.

### **The Psychological Contract**

**Concept.** The psychological contract is often used as a framework for understanding the changes occurring in the employment relationship and individual beliefs regarding the mutual obligations between the employee and the organization, which are outside the legal employment contract (Freese et al., 2011; Raeder et al., 2009; Rousseau, 1989). The interest in psychological contracts can be traced back to early work based on social exchange theory (e.g., Argyris, 1960; Levinson, Price, Munden, Mandl, & Solley, 1962; Schein, 1965), but expanded subsequently to the work of Rousseau (1989).

In the early work on the psychological contract, there was some diversity in the conceptualization of the construct (Coyle-Shapiro & Parzefall, 2008). Argyris (1960) proposed a narrow conceptualization of the psychological contract, based on tangible resources, while Levinson et al. (1962) and Schein (1965) viewed the psychological contract as containing expectations about tangible and intangible resources. Levinson et al. (1962) considered these expectations to be based on needs, with the perception that the other party was obligated to fulfill these expectations. Schein (1965) argued that the psychological contract was more of an interdependent construct, and focused on how the expectations of the employee corresponded with the expectations of the organization (Coyle-Shapiro & Parzefall, 2008).

More recent work on psychological contracts is heavily influenced by the reconceptualization of Rousseau (1989). She defined the psychological contract as an individual's belief about the reciprocal obligations existing between the employee and the

organization (Rousseau, 1989). While earlier work focused on expectations from both sides of the exchange relationship (i.e., organization and employee), she emphasized the employee *perception* and how the norm of reciprocity affected employee behavior (Coyle-Shapiro & Parzefall, 2008). Rousseau (1989) argued that these reciprocal obligations are grounded in explicit or implicit promises, where fulfillment of obligations from one party is dependent on the fulfillment of obligations from the other party. Rousseau's (1989) definition have thus several similarities to the underlying assumptions of social exchange theory (SET), as both contain expectations and obligations of social exchanges which are highly influenced by the norm of reciprocity (Coyle-Shapiro & Parzefall, 2008). However, there are some differences. SET mainly focuses on how an action from one party leads to a reciprocal act from the other party, without explicitly describing how this exchange evolves over time (Cropanzano & Mitchell, 2005). On the contrary, the concept of psychological contracts is considered to be dynamic in nature (Bankins, 2015; Chaudhry et al., 2009). Psychological contracts are assumed to be established at a certain point in time and to develop over the course of the employment relationship (Schalk & Roe, 2007). The formation and development of psychological contracts will, therefore, be discussed further in the subsequent section.

### **Development in Psychological Contracts**

Rousseau (2001) proposed that the formation of the psychological contract happens at different stages, beginning early in life by the formation of norms and expectations through socialization with family, peers, and individuals with work-life experience. These expectations are brought into the recruitment process, where there is an active exchange of promises between the employer and employee. During the first year of employment, the employee actively searches for information to complete the psychological contract and to reduce insecurity. After approximately a year, the psychological contract is assumed to be set and therefore more robust for further development (Coyle-Shapiro & Parzefall, 2008; Rousseau, 2001). However, substantial external impacts, such as major organizational changes, are assumed to affect the development of the psychological contract over the course of time (Schalk & Roe, 2007).

**Development during establishment.** Psychological contracts are expected to develop during organizational entry and the socialization period because this is a stage where new expectations and obligations are assumed to be formed and developed through cognitive sense making processes (De Vos, Buyens, & Schalk, 2003). De Vos et al. (2003) describe this process as a cycle of events, where employees try to understand, interpret and respond to the

new environment, and where new experiences might lead to a revision of expectations and assumptions about the future. Several studies have found support for this assumption. For example, De Vos and Freese (2011) conducted a longitudinal study to examine how newcomers' contract-related information seeking changed during their first year in the job. They found that employees seek more information about employer inducements than employee contributions and that the information seeking behavior decreases during the first year. They also found a positive relationship between information seeking during the first weeks after entry and their evaluation of psychological contract fulfillment after three months (De Vos & Freese, 2011). Changes in information seeking after this period were not related to changes in contract fulfillment. These results support the assumption that the psychological contract goes through some important formation and developmental processes during the first year of employment.

**Development due to organizational changes.** Development in the psychological contract can also happen over the course of time. With the increasing rate of organizational changes made by mergers, downsizing, and efficiency improvements, organizations are met with the challenge to adjust their current exchange relationship with their employees. Studies examining the effect of organizational changes on psychological contracts have shown diverse, but interesting results (Chaudhry et al., 2009). For example, Bellou (2006) found that perceptions of employer obligations decreased for the inducements *pay according to performance, support for personal problems, long-term employment, and involvement in decision-making*, but remained stable for the *opportunity for promotion, high pay, interesting work and personal development*. They also found a decrease in employee perception of organizational contributions in nine of the ten contributions measured. Similarly, Freese et al. (2011) conducted a three-wave longitudinal study and found that organizational changes had a negative effect on contract fulfillment, especially on *organizational policies and rewards*. However, it did not affect *career development, social atmosphere, and job content*. These results suggest that organizational changes can affect employee perception of organizational obligations and inducements and that the impact of changes might also be different for different obligations and inducements.

In sum, there is some support for development in psychological contract fulfillment, especially during the first year of employment and by the occurrence of substantial organizational changes. However, we have limited knowledge about how the development in psychological contract fulfillment affects development in attitudes and behavior, including OCB (Schalk & Roe, 2007).

## **Psychological Contract Fulfillment and Organizational Citizenship Behavior**

The relationship between OCB and psychological contract fulfillment is often explained in terms of social exchanges, as employees are expected to engage in citizenship behaviors as reciprocation for organizational inducements. Similarly, employees are expected to reduce these behaviors if they experience that the organization does not meet their obligations (Robinson & Morrison, 1995). In line with these assumptions, several cross-sectional and cross-lagged studies have found support for a positive relationship between PCF and OCB (e.g., Newton et al., 2008; Robinson & Morrison, 1995; Shih & Chen, 2011; Turnley et al., 2003; Yeh, 2011)

According to Coyle-Shapiro and Parzefall (2008), the relationship between psychological contract fulfillment and outcome variables is often considered as evidence for a reciprocal interplay between the employer and the employee. However, the results from cross-sectional studies are not sufficient for explaining the underlying processes for this reciprocity, as it is not able to provide any information about the direction and form of the relationship (Singer & Willett, 2003). The present study will therefore use a longitudinal approach to avoid some of the limitations of cross-sectional studies and to be able to examine how this relationship evolves over time. More specifically, this study will examine whether PCF can predict between-person differences in OCB, and whether the development in PCF is related to the development in OCB over time. Considering the results from previous studies, it is expected that PCF will be related to between-person differences in OCB. Also, given the theoretical assumption that this relationship is driven by social exchanges and the norm of reciprocity, it is expected that the development in PC will predict the development in OCB. More specifically, it is expected that:

*H2a: Psychological contract fulfillment will predict interindividual differences in OCB.*

*H2b: Intraindividual development in psychological contract fulfillment will predict the intraindividual development in OCB.*

## Methods

### Sample and procedure

The samples used in this study was a part of a larger doctor graduate project at the University of Oslo, examining dynamic changes in Norwegian work-life. Participants were recruited through personal networks, a Facebook-ad and a web-form on the university webpage. The population of interest was employees in Norwegian organizations, between 22-67 years of age. To be able to participate in the study, they needed to have an employer (i.e., not self-employed) and to be working more than 50 % in their current job. To insure diversity, we encouraged participation from both men and women, employees in both public and private sector, in all organizational sizes and with both predictable and changing work environments. The recruitment process was conducted over a six-month period.

Data of three groups of participants starting in different months were included in this study. These groups followed different schedules of data collection, so that two groups provided data on OCB and PCF at five waves and one group at four waves. At waves 4 and 5, questionnaires containing OCB and PCF were only administered to one of the groups, resulting in a smaller number of participants (Table 1). The sample used for this study consisted of participants who provided data on OCB and PCF at one wave or up to five waves. The average tenure was 7.80 (SD 7.49), the average age was 42 years, and about 76 % of all participants were female. About 70 % of all participants worked in the public sector, 26 % in the private sector and 4 % reported as “other.”

Table 1.

#### *Total Response Rates in OCB by Period*

Time	Total administered surveys	Total usable responses	Total response rate (%)
Wave 0	176	133	76 %
Wave 1	176	124	70%
Wave 2	176	114	65 %
Wave 3	176	105	60 %
Wave 4	76	49	64 %
Wave 5	37	23	62 %

*Note.* Wave 0-3 was administered to all groups. Wave 5 was only administered to the first group of participants and Wave 4 was only administered to the second group.

Table 2.

*Participation in number of measurement waves (N=168)*

	Number of participants	Percentage of total participants
1 wave	35	21%
2 waves	18	11%
3 waves	23	14%
4 waves	52	31%
5 waves	40	24%

*Note.* Five measurement waves was administered to the first group. Four measurements waves was administered to the remaining groups.

**Procedure.** Participants were encouraged to answer a survey once a month during a 12 month period. The survey was sent to participants as a web-form, accompanied by an introductory e-mail. This e-mail included information about the purpose of the study, how data was stored and anonymized, and that participants had the opportunity to leave the study at any point in time. If participants did not respond within 14 days, a reminder was sent out to participants via e-mail. If participants missed one measurement wave, they were still encouraged to answer subsequent measurements. All responses were coded and anonymized, and not traceable to the respondent's e-mail or IP-address. Because of time restrictions, only wave 0-5 were used as a sample for the current study.

**Sample attrition.** A total number of 176 surveys was administered in wave 0-4, and 116 surveys were administered in wave 5, with a response rate ranging from 60-76% in each wave (see Table 1). Of the total number of participants included in the sample (N=168), approximately 69 % responded to three or more measurement waves (see Table 2). The data was assessed for the presence of non-random sampling, by following the instructions of Goodman and Blum (1996). Multiple regression was used to assess whether there was any systematic sample attrition in the data, but the results showed no signs of non-random sampling.

### Measures

OCB and psychological contract fulfillment were measured at wave 0-5. All scales originally contained English items but were translated into Norwegian. The items in OCB and psychological contract fulfillment contained multiple statements and were measured on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree."

**Organizational Citizenship Behavior.** OCB was measured with the seven-item OCB-I subscale made by Williams and Anderson (1991). OCB-I refers to citizenship behavior directed at other individuals in the organization, including colleagues and supervisors. The current study excluded the OCB-O subscale to keep the survey at a manageable length. This was done to encourage participation over time and thus reduce attrition. An introductory sentence was added to the measurement to encourage participants to refer to the last month (i.e., in the last month I have...). The sample items include statements as “taken a personal interest in other employees,” “helped others who have heavy workloads,” “assisted supervisor with his/her work (when not asked),” and “passed along information to co-workers.” Cronbach alpha was acceptable throughout all waves, ranging from .771-.846.

**Psychological contract fulfillment.** Psychological contract fulfillment was measured using an updated 13-item scale based on the scale of Raeder et al. (2009). This scale measures employees’ perception of received employer inducements, including “loyalty,” “opportunities for promotion,” “involvement in decision making,” and “promoting a positive organizational culture.” Similar to the OCB-scale, it was included an introducing sentence encouraging participants to refer to the last month (i.e., in the last month my employer has provided me with...). Sample items included statements as “loyalty,” “involvement in decision making,” “a career in the company,” and “a positive organizational culture.” Cronbach’s alpha was excellent throughout all waves, ranging from .959-.952.

**Control variables.** Sex, tenure, promotion and workload were added as control variables, and all variables were measured each month. *Tenure* refers to the number of years in the current job and meta-analytic research have found support for a positive, but curve-linear, relationship between tenure and citizenship behavior, where the magnitude of the positive relationship tend to decrease with longer tenure (Ng & Feldman, 2010). *Workload* was added as a dichotomous variable, and participants answered yes or no to whether they had experienced a heavy workload within the last month. Based on the results from Binnewies et al. (2009, 2010), a high workload can be hypothesized to be related to OCB by reducing available psychological and physical resources needed for engaging in discrete behavior outside the formal job requirements and thus reducing employees engagement in citizenship behavior.

As illustrated in the study by Hui et al. (2000), some individuals may regulate their citizenship behaviors before and after a potential promotion. Promotion was therefore added as a discontinuous slope, as it was expected that the event of promotion would lead to a shift in elevation and slope in individual growth trajectories. Similar to workload, respondents

answered yes or no to whether they had received a promotion during the last month. As recommended by Singer and Willett (2003), the discontinuous slope was modelled by a temporal predictor, where a reported promotion would lead to a one-unit climb in elevation (i.e., 0 to 1) and an additional annual one-unit climb for each of the following measurement waves, postulating that promotion would lead to an increased rate of change in OCB.

## Analyses

### Exploratory analyses

Exploratory analyses were conducted in line with the stepwise procedure suggested by Singer and Willett (2003), with the intention to obtain an initial overview of general patterns and functional forms in the data. Both parametric and non-parametric growth trajectories were examined as individual plots and as entire samples.

**Random Coefficient Modeling (RCM).** Hypothesis 1 and 2 was tested by using random coefficient modeling (RCM), following the stepwise estimation procedure by Bliese and Ployhart (2002). RCM is based on random effect equations and makes it possible to examine both intraindividual change and inter-individual differences in intraindividual change (Singer & Willett, 2003). Also, RCM allows the use of an unbalanced data set and thus to retain participants despite attrition and opens for several model fit statistics and relaxation of the requirements for error structures (Bliese & Ployhart, 2002). A simple notation of RCM is shown in equation 1 (Bliese & Ployhart, 2002; Singer & Willett, 2003).

Equation 1.

$$\text{Level 1: } Y_{ij} = \pi_{0i} + \pi_{1i}T_{ij} + \varepsilon_{ij}$$

$$\text{Level 2: } \pi_{0i} = \gamma_{00} + \gamma_{01}X_i + r_{0i}$$

$$\pi_{1i} = \gamma_{10} + \gamma_{11}X_i + r_{1i}$$

*Note.*  $Y_{ij}$  = Predicted individual development in outcome variable;  $i$  = individual;  $t$  = time;  $j$  = occasion;  $\varepsilon$  = error;  $\pi_{0i}$  = individual  $i$ 's true initial status;  $\pi_{1i}$  = individual  $i$ 's true rate of change;  $T$  = coding for time;  $\gamma_{00}$  = population average initial status (fixed effect);  $\gamma_{10}$  = population average rate of change (fixed effect);  $r_{0i}$  = variability in intercepts across individuals (random effect);  $r_{1i}$  = variability in slopes across individuals (random effect);  $X$  = predictor variables.

The Level 1-equation models the within-person (i.e., intraindividual) development over time, where individuals ( $i$ ) can differ in their form of change, in both initial status ( $\pi_{0i}$ ) and rate of

change ( $\pi_{1i}$ ). The Level 2-equation refers to between-person differences in development over time (i.e., interindividual differences in intraindividual development), where it's possible to add either time-varying or static predictor variables ( $X$ ) (Bliese & Ployhart, 2002). RCM distinguishes between fixed and random effects. The fixed effects refer to the average initial status ( $\gamma_{00}$ ) and the average rate of change ( $\gamma_{10}$ ), while the random effect refers to the individual differences in initial status ( $r_{0i}$ ) and the individual differences in rate of change ( $r_{1i}$ ) (Bliese & Ployhart, 2002). For the sake of parsimony, the Level-1 and Level-2 submodels are often presented as a composite model. However, the logical and mathematical contents are the same (Singer & Willett, 2003). To conclude, RCM can be used to examine the individual and average development in OCB and whether this development can be predicted by PCF as a time-varying variable.

**RCM Stepwise Estimation Procedure.** The estimation procedure by Bliese and Ployhart (2002) is based on a model comparison framework, moving from random intercept regressions to more complex models. In this study, all models were compared based on Akaike Information Criterion (AIC). The AIC is used as a measure of relative model fit and is based on the log-likelihood statistic, where a decrease in value indicate better goodness-of-fit (Ployhart, Holtz, & Bliese, 2002). The advantage of using the AIC is that it accounts for the number of parameters and can be used to compare non-nested models (e.g., models with different predictors) (Singer & Willett, 2003). Pseudo  $R^2$  values (i.e., explained variance in the models) was calculated as the squared correlation between the actual values of OCB and the values predicted by the fixed effects (L. Hoffman, 2015).

The first step in the estimation-procedure involves the establishment of an unconditional mean model, which resemble a simple regression model where individuals are allowed to vary in the initial status. The variance components was used to calculate the intraclass correlation coefficient (ICC). In this context, the ICC refers to the amount of variability in OCB that can be attributed to the between-person difference over the five measurement waves. The next step was to estimate the nature and shape of the development in OCB, by including different orthogonal polynomial terms (i.e., linear, quadratic, cubic) in the model as both fixed and random effects. All models in step 2 was compared by model fit and variance components, where excess terms were removed from subsequent models as recommended by Singer and Willett (2003). The last step in the Level-1 analysis was to test for alternative error covariance structures in OCB (e.g., unstructured, autoregressive, Toeplitz). This step is critical in RCM, because the OLS regression assumptions about

random and independent errors are often violated in studies with repeated measures. Violations of these assumptions can have a dramatic effect on significance tests and model fit, and should, therefore, be accounted for (Bliese & Ployhart, 2002; Singer & Willett, 2003). When the Level-1 model was established, control variables (i.e., sex, tenure, workload, promotion) and PCF was included in the model as Level-2 predictors. All variables were tested for different functional forms (i.e., intercept, linear, quadratic), and in interaction with time.

Psychological contract fulfillment was added as a time-varying predictor variable and would, therefore, contain both between-person and within-person variance. Following the recommendations of Hoffman (2015), the two sources of variance were separated by producing two different forms of the PCF variable. The first variable was produced by calculating each person's individual mean. Since each individual will have one average value through all measurement waves, this variable will only vary between-person. The second variable was produced by calculating the person-mean centered values for each individual. This variable only varies within-person, because the mean value throughout all measurement waves will be 0. Both forms of the PCF variable was added as a predictor for OCB, and in interaction with time. All analyses were done using the statistical program SPSS.

## **Results**

### **Explorative Analyses of Development**

The first step in the exploratory analysis was to compute empirical growth plots to visualize the development of OCB over all measurement waves. These growth plots were examined using both nonparametric and parametric approaches, and growth trajectories were examined individually and as a complete set. The nonparametric approach relied on assumption-free smoothing of the individual pattern, while the parametric approach adds a common functional form for all trajectories (e.g., linear, quadratic).

Figure 1 illustrates non-parametric and parametric smoothed growth trajectories for all individuals, summarizing how each individual develops over time. The right panel presents the complete set of smoothed growth trajectories, where ordinary least squares (OLS) regression was added as a common parametric model for each person's data. For the sake of parsimony, a straight line was chosen as the common functional form for the development of all individuals. Both growth plots show that most trajectories have an initial status in the range between 3 and 5, but they also show substantial individual differences in the shape and

direction of trajectories. As shown in the left panel, some non-parametric growth trajectories have a linear development, while other seems to have a quadratic or cubic development. Overall, this suggest that there is a development in OCB and that individuals differ in their development.

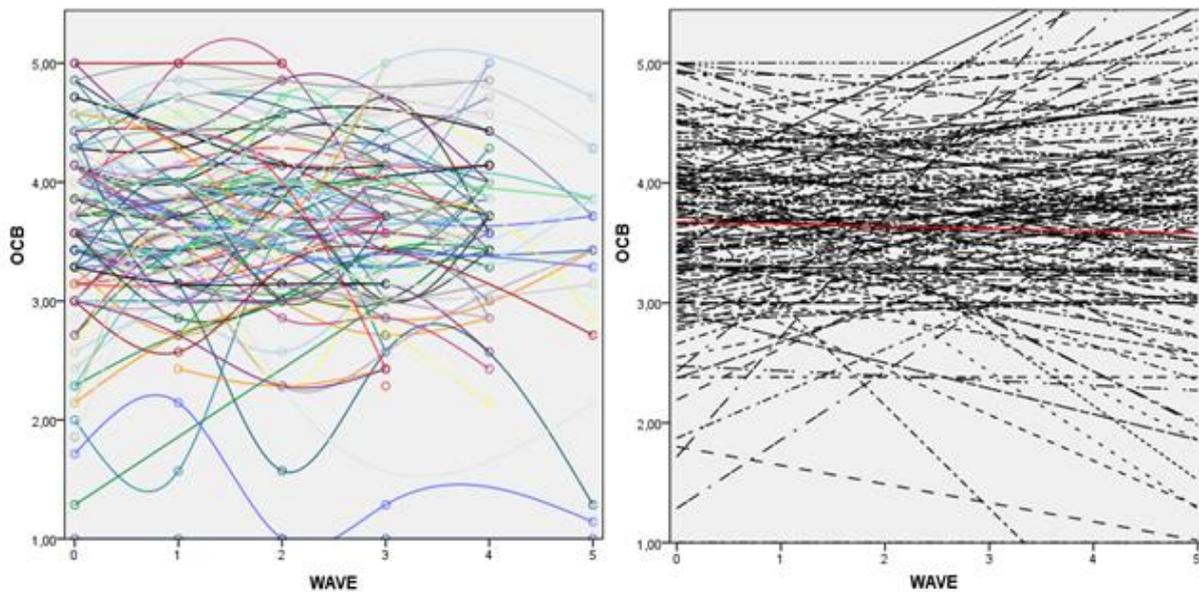


Figure 1: Individual smoothed growth trajectories for all participants. Left panel: nonparametric. Right panel: parametric. A straight line was added as a common functional form for all growth trajectories. In the right panel, the overall mean OLS-regression line is represented in red.

### Descriptive analysis

Descriptives in the form of means, standard deviations, internal reliability and intercorrelations for all study variables are shown in Table 3. Internal reliabilities (i.e. Cronbach's alpha) in T1-T5 ranged from .77 to .85 for OCB, and from .93 to .95 for PCF. Reliabilities in the range between .77 to .79 are considered as respectable, whereas alphas between .80 to .79 are considered to be very good and alphas over .90 are considered as excellent (DeVellis, 2012). The internal reliability in both scales can thus be considered to be in the range between respectable and excellent throughout all measurement waves.

### Results from Random Coefficient Modeling

The results from the RCM estimation procedure are shown table 4-5. Table 4 presents the development in psychological contract fulfillment, while the final models of development of OCB is presented in Table 5. These models are presented in detail in the subsequent sections, starting with the results from the Level-1 analyses estimating the development in OCB.

Table 3

*Means, standard deviations, intercorrelations and Cronbach's alpha.*

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Sex	.76	.42	-															
2. Tenure	7.80	7.49	.05	-														
3. Workload	.46	.36	.02	.00	-													
4. Promotion	.10	.30	.01	-.06	.03	-												
5. T0 OCB	3.64	.76	.28**	.24**	.08	.12	.83											
6. T1 OCB	3.64	.66	.22*	.11	.16	.13	.73**	.77										
7. T2 OCB	3.69	.73	.20*	.13	.14	.14	.74**	.73**	.80									
8. T3 OCB	3.62	.73	.32**	.26**	.04	.17	.61**	.65**	.76**	.80								
9. T4 OCB	3.72	.64	.46**	.02	-.25	.35*	.43**	.33**	.64**	.58**	.81							
10. T5 OCB	3.27	1.00	.13	.06	.58**	.08	.83**	.79**	.94**	.87**	<sup>a</sup>	.97						
11. T0 PCF	3.09	.91	-.02	.04	.04	.18*	.17*	.22*	.15	.15	.34**	.37	.94					
12. T1 PCF	3.14	.85	-.07	-.05	.06	.27**	.27**	.25**	.22*	.19	.28*	.31	.84**	.94				
13. T2 PCF	3.15	.85	.02	-.05	.03	.19*	.31**	.33**	.38**	.30**	.40**	.34	.79**	.81**	.93			
14. T3 PCF	2.98	.82	.02	.03	-.20*	.25*	.14	.17	.16	.19*	.36**	.44	.69**	.70**	.79**	.93		
15. T4 PCF	3.13	.96	.06	-.15	.10	.33*	.01	.14	.13	.17	.27	<sup>a</sup>	.66**	.65**	.80**	.82**	.93	
16. T5 PCF	2.95	1.00	-.03	.22	.33	-.07	.48*	.60**	.40	.45*	<sup>a</sup>	.40	.85**	.87**	.87**	.87**	<sup>a</sup>	.97

*Note.* Values for Cronbach's alpha are on the diagonal. T0-T5 = Wave 0- Wave 5; OCB = organizational citizenship behavior; PCF = psychological contract fulfillment. Sex (0 = men, 1 = women); workload (0 = no, 1 = yes); promotion (0= no, 1 = promotion in a previous or the current wave). Workload and promotion are time-varying, but reported in an aggregated form because correlations within these variables at different waves are redundant. <sup>a</sup> Because of the sampling schedule, no participants contributed to both waves 4 and 5. \*  $p < .05$ ; \*\*  $p < .01$ .

Table 4

*Random Coefficient Model Predicting Psychological Contract Fulfillment over time*

		Parameter	Model A Est. (SE)
<b>Fixed effects</b>			
Initial status $\pi_{0i}$	Intercept	$y_{00}$	3.099 (.068)**
Rate of change $\pi_{02i}$	WAVE	$y_{10}$	-.004 (.0175)
<b>Random effects</b>			
Level 1	Within-person	$\sigma_{\varepsilon}^2$	.139 (.012)**
Level 2	In initial status	$\sigma_0^2$	.645 (.085)**
	In rate of change	$\sigma_1^2$	.019 (.006)**
	Covariance	$\sigma_{01}$	-.039 (.017)*
<b>Pseudo R<sup>2</sup> and model fit</b>			
	Pseudo R <sup>2</sup>		0.000
	AIC		1007.506

*Note:*  $N = 168$ . Model A represents the unconditional mean model of psychological contract fulfillment. AIC = Akaike information criterion. Pseudo R<sup>2</sup> was calculated as the squared correlation between the actual values of OCB and the values predicted by the fixed effects.\*  $p < .05$ ; \*\*  $p < .01$ .

Table 5

*Final Random Coefficient Models of the Prediction and Development of OCB*

			Model A	Model B	Model C	Model D	Model E
Parameter			Est. (SE)				
<b>Fixed effects</b>							
Initial status $\pi_{0i}$	Intercept	$y_{00}$	3.648 (.054)**	3.647 (.055)**	3.089 (.108)**	2.579 (.227)**	2.575 (.227)**
	Sex	$y_{01}$			.446 (.106)**	.471 (.103)**	.374 (.103)**
	Tenure	$y_{02}$			.016 (.006)**	.016 (.006)**	.016 (.006)**
	Promotion	$y_{03}$			.253 (.118)*	.196 (.117)	.202 (.117)
	Workload	$y_{04}$			.134 (.046)**	.138 (.046)**	.144 (.045)**
	PCF pm	$y_{05}$				.160 (.064)*	.160 (.065)*
	PCF pmc	$y_{06}$					.214 (.085)*
Rate of change $\pi_{02i}$	WAVE	$y_{10}$	-0.005 (.013)	-0.002 (.016)	-0.002 (.016)	-0.034 (.062)	-0.037 (.061)
	PCF pm *wave					.010 (.020)	.011 (.019)
	PCF pmc*wave						-.016 (.039)
<b>Random effects</b>							
Level 1	Within-person	$\sigma_{\varepsilon}^2$	.164 (.012)**	.135 (.012)**	.132 (.012)**	.132 (.012)**	.127 (.011)**
Level 2	In initial status	$\sigma_0^2$	.348 (.044)**	.379 (.055)**	.321 (.048)**	.306 (.047)**	.313 (.047)**
	In rate of change	$\sigma_1^2$		.012 (.004)**	.014 (.004)**	.012 (.004)**	.012 (.004)**
	Covariance	$\sigma_{01}$		-.019 (.012)	-.022 (.017)	-.023 (.012)*	-.024 (.012)*
<b>Pseudo R<sup>2</sup> and model fit</b>							
	Pseudo R <sup>2</sup>		.001	.001	.127	.180	.188
	AIC		902.146	894.004	864.680	858.849	847.901

Note:  $N = 168$ . PCF pm = psychological contract fulfillment person-mean; PCF pmc = psychological contract fulfillment person-mean centered. Sex (0 = men, 1 = women); workload (0 = no, 1 = yes); promotion (0 = no, 1 = yes). \*  $p < .05$ ; \*\*  $p < .01$ .

### **Level-1 analyses**

Hypothesis 1 proposed that there would be an intraindividual development in OCB and that individuals would differ in this development. This proposal was examined by Level-1 analyses, and the results are shown in Table 5 as model A and B.

**Model A** represents the unconditional mean model, where individuals are allowed to vary in intercept, but not in slopes. The individual growth trajectories represent the individual mean across all measurement waves, while the estimated fixed effect ( $\gamma_{00}$ ) represent the grand mean of all individuals across all measurement waves (Singer & Willett, 2003). The variance components summarize the within-person variance (i.e., individual deviance around a person-specific mean) and between-person variance (i.e., the deviance between the person-specific mean and grand mean). The results from model A suggest that the grand mean of all individuals over all measurement waves are estimated to be 3.648 ( $p = <.01$ ). The within-person variance and between-person variance are highly significant, indicating that there are sufficient variance to continue with subsequent models (Singer & Willett, 2003). ICC was calculated to be .32, indicating that 68 % of the variance in OCB can be attributed to between-person differences (Singer & Willett, 2003). Overall, model A illustrates that individuals differ from each other in the level of engagement in OCB and that individuals differ in their engagement in OCB at different occasions.

**Model B** represent the unconditional growth model. By adding wave (i.e., time) as a linear predictor, individuals are allowed to vary in the intercept and in the slope associated with time. The Level-1 random effects will now represent the sum of individual deviance from the same individual's linear growth trajectory. Similarly, the Level-2 random effects represent the sum between person variability in intercept and slope. The fixed effect of intercept and slope represent the initial status and average linear growth trajectory for all individuals, respectively. The results from model B show a significant fixed effect in intercept (est. 3.647,  $p = <.01$ ), but not in slope (est. -.002,  $p = >.05$ ), suggesting that there are significant inter-individual differences in the average level of OCB over all measurement waves, but no significant trend of development for all individuals. The random effects of model B indicate that there are statistically significant within-person variance (est. .135,  $p = <.01$ ) and between-person differences in intercept (est. .379,  $p = <.01$ ) and slope (est. .012,  $p = <.01$ ). These results support Hypothesis 1, which predicted that there would be an intraindividual development in OCB and that individuals would differ in this development. The AIC decreased from 902 in model A to 894 in model B, suggesting an increased model fit.

More complex orthogonal polynomial terms were included in subsequent models, to test whether quadratic or cubic growth parameters could explain the variance better than the linear form in model B. Neither of the models increased the AIC and were thus excluded from the final models in Table 5. The model was tested for alternative covariance error structures, but neither lead to a better model fit (AIC) than the standard covariance error structure, which suggests that the assumptions about independent and non-correlated error were met in the data (Singer & Willett, 2003).

**Model C.** Sex, tenure, workload and promotion was included as Level-1 control variables in model C. The intercept  $y_{00}$  show that the average initial status of all individuals is estimated to be 3.089 ( $p = < .01$ ), when all control variables are 0. Surprisingly, all control variables had a significant positive effect on OCB. The fixed effect of sex (est. .446,  $p = < .01$ ) suggests that women, on average, have a higher level of engagement in OCB than men. However, this should be interpreted with caution because of the high percentage of female participants in the study. The fixed effect of tenure (est. .016,  $p = < .01$ ), suggest that employees with longer tenure engage more in OCB than employees with shorter tenure. Also, the fixed effect of workload (est. .134,  $p = < .01$ ) suggest that employees that experience high workloads engage more in OCB than those with low workloads. The fixed effect of the discontinuous slope of promotion (est. .253,  $p = < .05$ ), indicate that employees that received a promotion during the five measurement waves had a positive increase in OCB after the promotion. The AIC of model C was 865, and the pseudo  $R^2$  was .127, indicating a better model fit than model B. All control variables was tested for an interaction with time, but neither was significant or improved the model fit. Orthogonal polynomial terms were thus excluded from the final models in Table 5.

### **Level-2 analyses**

Hypothesis 2a and 2b proposed that psychological contract fulfillment would predict inter-individual differences in OCB, and that intraindividual development in psychological contract fulfillment would predict the intraindividual development in OCB. These hypotheses were tested in the level 2 analyses, and the results are shown as model D-E in Table 5.

In **model D**, psychological contract fulfillment was included as a predictor variable. Following the recommendations of Hoffman (2015), the between- and within-person sources of variation in PCF were separated by producing two forms of the predictor variable. The first predictor is shown in model D and is a person-mean centered form of each individual's mean in PCF. This variable does not vary within individuals but varies between individuals. The

results show that the between-person variability in PCF has a significant fixed effect in intercept (est. 2.579,  $p = <.01$ ), but not in slope (est. -.064,  $p = > 0.05$ ). In addition, it does not show a significant interaction effect with wave (est. .010,  $p = > .05$ ). This suggests that individuals who report a higher level of PCF tend to have a higher average level of OCB than others. However, the between-person differences in PCF do not affect the development in OCB over time.

**Model E** included the person-mean centered form of PCF. This variable only consists of the within-person variance in PCF, as the average of each individual's scores over all measurement waves are 0. Similar to the results from model D, there was a significant fixed effect in intercept (est. 2.575,  $p = <.01$ ), but not in slope (est. -.037,  $p = >.05$ ). The person-mean centered form of PCF did also not show a significant interaction effect with time. These results suggest that within-person variance in PCF affect the average level of OCB, but not the development over time.

**Attrition.** One of the main advantages of RCM is that it can accommodate for missing values, as long as missing values are random and not too severe (Ployhart et al., 2002). Random-effect pattern-mixture models were used to test the effects of attrition on the outcome, as suggested by Hedeker and Gibbons (1997). As seen in Table 2, not all participants responded to all measurement waves. Potential effects of attrition were controlled for by dividing subjects into groups based on their pattern of missing values. These groups were tested for significant interaction with all predictor variables in the final model. None of these interactions was significant, implying that no effects of missing data patterns were observed in the data. These interactions are thus not shown in the final models (Singer & Willett, 2003).

## Discussion

The aim of this study was to examine the intraindividual development in OCB over time and to investigate whether this development could be predicted by psychological contract fulfillment. RCM was used to analyze longitudinal data from employees working in a variety of organizations. The results suggest that individual engagement in OCB develops over time. However, no overall trend of development was found for all participants. Psychological contract fulfillment was shown to predict between-person differences in OCB but failed to predict individual development in OCB. Overall, these results support the assumption that OCB can be seen as a dynamic construct, and that it is positively related to psychological contract fulfillment.

## **Theoretical Contributions**

This study makes two important theoretical contributions to the OCB literature. First, this study contributes with an important insight into the dynamic nature of citizenship behavior. Previous research has implicitly modeled change in OCB, but to my knowledge, this is one of the first longitudinal studies to examine its development over time. By collecting multiple waves of measurements from the same individuals, this study has provided information about how individuals vary in OCB at different points in time. RCM made it possible to examine the direction and structural form of individual growth trajectories, as well as the overall trends of development. Although no common trend was found for all participants, the results support the assumption that OCB develops over time and that individuals develop differently. Knowledge about within-individual development is important for more accurate predictions about future citizenship behaviors and should be taken into account in future studies and theory building (Bolino et al., 2012; Mitchell & James, 2001; Ployhart & Vandenberg, 2010; Singer & Willett, 2003)

Second, the present study has contributed to an important insight to how the relationship between OCB and psychological contract fulfillment develops over time. Although previous research has found support for a positive relationship between OCB and PCF, there has been a lack of knowledge about how this relationship develops over time. To my knowledge, this is among the first studies to examine this relationship longitudinally. By examining OCB and PCF as time-varying variables, this study has been able to examine the development in each construct simultaneously (Singer & Willett, 2003). Both variables was found to be developing over time and related to each other on the between-person level. Although PCF was not able to predict the development in OCB in the present study, the current approach to examine this relationship will hopefully spark further research on the topic.

## **Discussion of Results**

**The development in OCB.** The examination of growth plots in the exploratory analyses (see Figure 1), suggested that most individuals varied in their level of OCB at different points in time and that there was a substantial variability in individual growth trajectories. The results from the RCM analyses supported these assumptions. The significant variance components in intercept and rate of change suggest that the initial status of OCB differs among individuals and that there is individual development in OCB over time. The

significant fixed effect in the intercept, suggests that there are between-person differences in the individual average level of OCB. However, as there was a non-significant fixed effect in the rate of change, no common trend of development was found for all participants. Overall, the results from the Level 1 analyses indicates that there is an individual development in OCB and that this development differs among individuals, thus supporting Hypothesis 1.

These findings are interesting for several reasons. First of all, these results support the assumption that individual OCB develops over time, and thus should be seen as a dynamic construct (Bolino et al., 2012). Also, the results support the assumption that engagement in OCB develops differently within different individuals. As seen in the exploratory analysis (Figure 1), there was a notable variability in the structural form of individual growth trajectories, representing both linear, quadratic and cubic development. This variability of development can be explained in light of the diversity in the study sample. As proposed by Bolino et al. (2012) individual engagement in OCB is likely to be affected by a range of individual and environmental factors. Participants in the current study were recruited from a variety of organizations and professions, with the intention of increasing the generalizability of the results. However, this means that all participants were exposed to different social cues, work environments, and organizational changes, making it difficult to have a common ground for comparison. This variability in development is likely to be the reason why no common trend of development was found for all participants, as the development in the individual growth trajectories canceled each other out.

It is also important to note that the development of OCB *over* time is not caused *by* time itself (Ployhart & Vandenberg, 2010). Time is rather seen as a proper metric for representing development (Ployhart & Vandenberg, 2010; Singer & Willett, 2003). The results of the predictive effect of psychological contract fulfillment will, therefore, be discussed in the subsequent section.

**The effect of Psychological Contract Fulfillment.** Similar to OCB, PCF had a significant intraindividual development over time, but no common trend of development for all individuals (see Table 1). The results of the analyses show that both person-mean and person-mean centered PCF could significantly predict inter-individual differences in the average level of OCB, thus supporting Hypothesis 2a. However, neither of the PCF variables was able to predict individual development in OCB over time. Hypothesis 2b was therefore not supported.

These results support the findings from previous research, as they indicate that psychological contract fulfillment and OCB are related on the between-person level. This

suggests that employees with a high *average* level of psychological contract fulfillment also tend to have a high *average* level of OCB. However, considering the theoretical assumptions about the norm of reciprocity, it would be expected that the development OCB would follow the development in PCF. But, although the within-person variance in PCF (i.e., person mean centered variable) was able to predict differences in OCB, it was not able to predict how individuals developed over time. These results can be interpreted in several ways.

First, these results can imply that the relationship between OCB and PCF is mainly on the between-person level. But considering that both constructs show significant within-person variance, it seems unlikely that the individual mean is a good representation of an employee's perception of PCF or engagement in OCB over time. The second interpretation is that the applied time-intervals of measurement waves was unfitted to reveal the dynamic relationship between OCB and PCF. In the present study, measurements were collected on a monthly basis and were based on individual perceptions about the preceding month. It may be that the effect of PCF occurred outside these frames of time. For example, the effect of PCF may have led to a more instant form of reciprocation (e.g., within days or weeks). On the contrary, it might be that PCF affects the development in OCB over a longer period of time (e.g., several months). As argued by several researchers (e.g., Mitchell & James, 2001; Ployhart & Vandenberg, 2010; Singer & Willett, 2003) proper time intervals are essential for revealing dynamic relationships. However, because of the general lack of longitudinal research within the field organizational psychology, there are no clear instructions of ideal intervals for different types of relationships (Mitchell & James, 2001). Finally, the potential effect of PCF on the development in OCB might have been present, although it was not visible in the current analyses. Because of the substantial variability of individual growth trajectories in both constructs, PCF and OCB needs to be aligned to show an effect of development on OCB. To conclude, there is a need for more longitudinal research examining the relationship between psychological contract fulfillment and OCB over time.

**Control variables.** All control variables had a significant fixed effect on the average level of OCB and are therefore further discussed. In line with results from a meta-study of Ng and Feldman (2010), tenure was positively related to citizenship behavior. Sex was also significantly related to OCB, suggesting that women, on average, have a higher engagement in citizenship behavior than men. This gender difference has been found in previous studies, supporting the assumption that females tend to direct their citizenship behavior towards other individuals, while men tend to have a more task-oriented approach to citizenship behavior (Eagly, 2009; Kidder, 2002). However, it should be noted that the current results should be

interpreted with caution, considering the high percentage of female participants in the present study.

Promotion was added as a control variable by modeling a discontinuous slope in OCB after a promotion event. The results show that this discontinuous slope had a significant effect on OCB, suggesting that individuals who received a promotion during the study, increased their engagement in OCB in the subsequent months. According to social exchange theory, a promotion can be seen as a favorable action from the employer, leading to a perceived imbalance in the social exchange relationship between the employer and the employee. The increasing level of OCB can, therefore, be seen as an act of reciprocity to restore this balance.

Workload did also show a significant positive effect on the average level of OCB, suggesting that employees who experienced a high workload during one month, also engaged in a higher level of OCB in the same period. This can be seen as contradicting the research on the relationship between OCB and available psychological resources, assuming that a high workload implies a reduced amount of available resources and thus a lower level of OCB (Binnewies et al., 2010; Trougakos, Beal, Cheng, Hideg, & Zweig, 2015). On the contrary, it may also be the case that these employees experience high workloads because they engage in high levels of citizenship behaviors, as suggested in recent research on potential negative consequences of OCB (Bergeron, 2007; Bolino, Hsiung, Harvey, & LePine, 2015; Koopman, Lanaj, & Scott, 2016).

### **Limitations and Future Research**

This study has made several important contributions to the OCB literature, but the results should be interpreted in terms of study limitations.

First, although longitudinal research provides a stronger foundation for assuming causal relationships than cross-sectional studies, it is not sufficient to make causal conclusions. The inclusion of multiple measurement waves of both outcome and predictor variables makes it possible to examine how the development in one variable relates to the development in the other. However, it cannot fully exclude the effects from third-variables or state a direction of causality. For a better understanding of the causal relationship between PCF and OCB, future research should examine this relationship using a lagged design. This was not used in the current study, as it would lead to a reduced number of usable measurement waves and responses.

A second limitation is related to the measurement of OCB. Attrition is considered as an extensive threat in longitudinal research (Bliese & Ployhart, 2002). To reduce the number

of potential dropouts from the study, it was found necessary to shorten the survey to a manageable length. This was partly done by including only one of the two OCB-subcales made by Williams and Anderson (1991) and thus excluding OCB-O. Previous studies have found that the two subscales have different antecedents and correlates. For example, Turnley et al. (2003) found that both subscales were positively related to psychological contract fulfillment, but the relationship was stronger for OCB-O than OCB-I. In future research, it would be interesting to see whether OCB-O has a different development pattern than OCB-I and whether it has a different relationship with psychological contract fulfillment over time. Also, it could be interesting to compare the development in OCB to the development of other dimensions of job performance (e.g., task performance) as has been done in cross-sectional studies (e.g., Restubog, Hornsey, Bordia, & Esposito, 2008; Turnley et al., 2003)

Third, all measurements were based on self-reports, which tend to be more related to self-presentation bias than other-ratings. Self-presentation bias refers to respondents' tendency to overrate themselves on behaviors that are seen as highly socially desirable, which is the case for organizational citizenship behavior (Carpenter, Berry, & Houston, 2014). It is also suggested that self-reports can cause contradictory and varying relationships with correlates, for example, if respondents feel the need to justify their ratings on other variables. In a meta-analysis, Carpenter et al. (2014) found a significant mean difference between self-reported and other-reported levels of OCB-I, supporting the presence of over-ratings in self-reports of OCB-I. However, the effect size of these differences was relatively small.

A related limitation is that both predictor and outcome variable were rated by the same individual, which might be related to common-rater bias. Common-rater bias refers to the prevalence of any artificial correlation between two variables which is a result of the fact that there is a common source of rating on both measurements (N. P. Podsakoff, Whiting, Welsh, & Mai, 2013). In a meta-analysis by N. P. Podsakoff et al. (2009), they found that the rating source moderated the relationship between OCB and task performance, such as the relationship tended to be stronger when the ratings of both variables were made by the same source. Similar results were found by N. P. Podsakoff et al. (2013). In the present study, all ratings were made by the same individual in all measurements. The results should, therefore, be interpreted in terms of potential bias effects.

Finally, future research would benefit from the inclusion of different time-frames or include more measurement waves. Applying analytical approaches as RCM to measurement waves collected over days, weeks or years, could provide a more elaborate understanding of the development in OCB. Also, to gain further knowledge about its relational aspects, future

research should examine the dynamic relationship between OCB and other related constructs within the individual or occurring in the work environment.

### **Implications for practice**

The results from this study may have practical implications for employers. In times characterized by organizational changes, organizations are dependent on employees who are willing to contribute to organizational efficiency by engaging in behaviors outside the formal requirements. Although psychological contract fulfillment was unable to predict the development in OCB, it was a highly significant predictor of the average level of OCB over time. If the employer wants to increase the overall level of OCB in their organization, he/she should evaluate the organization's inducements toward the employee. The scale made by Raeder et al. (2009) includes several specific items which can be used as a reference of concrete inducements. For example, employers should provide employees with interesting work tasks, opportunities for personal development and increased responsibility. The results from the present study also suggests that employers should consider individual differences when providing such inducements. Further, the effect of the discontinuous slope of promotion, suggest that giving employees another job role or function in the organization may also lead to an increased level of OCB over time.

### **Conclusion**

The aim of this study was to contribute to the understanding of the dynamic nature of OCB, by exploring the direction and form of intraindividual development in OCB over time. Also, this study aimed to examine whether differences in psychological contract fulfillment could predict differences in the development in OCB. This was examined through the use of longitudinal data and random coefficient modeling. The results support the assumption that individual OCB develops over time and that individuals differ in this development. The dynamic nature of OCB should, therefore, be considered in future research and theory building. The results of the present study also suggest that psychological contract fulfillment was a strong predictor of the individual mean level of OCB, but was not able to predict the intraindividual development in OCB over time. Future research should examine this relationship more thoroughly, alternatively by including more measurement waves, add different time-intervals, or try to align the development in psychological contract and OCB. Overall, the findings from this study suggest that employers can increase the average level of OCB by evaluating and enhance their inducements for their employees.

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