

# Antecedents of pro-environmental behaviours at work: The moderating influence of psychological contract breach<sup>☆</sup>



Pascal Paillé<sup>a,\*</sup>, Jorge Humberto Mejía-Morelos<sup>b,1</sup>

<sup>a</sup> Department of Management, Faculty of Business Administration, Laval University, Pavillon Palais-Prince, Local 1638, 2325, rue de la Terrasse, Quebec City, QC G1V 0A6, Canada

<sup>b</sup> ITAM, Av. Camino a Sta. Teresa 930, Col. Héroes de Padierna, Mexico D.F. 10700, Mexico

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## ABSTRACT

This study uses the tenets of social exchange theory to examine employee willingness to perform pro-environmental behaviours (PEBs) in a workplace setting. The first aim of the study was to examine the indirect effect of perceived organisational support on pro-environmental behaviours via job attitudes. The second objective was to clarify whether a psychological contract breach affects the relationships between perceived organisational support and job attitudes. Using a convenience sample ( $N = 449$ ), we report that perceived organisational support has an indirect effect on PEBs through employee commitment to the organisation. Additionally, organisational support moderates the effect of a perceived breach on employee job satisfaction.

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## 1. Introduction

Several theoretical frameworks have been used to explain pro-environmental behaviour (PEB) in the workplace. Such frameworks include the Value-belief-norm (VBN) theory (Andersson, Shivarajan, & Blau, 2005; Scherbaum, Popovitch, & Finlinson, 2008), the cognitive theory of stress (Homburg & Stolberg, 2006) and the theory of planned behaviour (TPB) (Greaves, Zibarras, & Stride, 2013). Contrary to Scherbaum et al. (2008), Anderson et al. (2005) concluded that VBN theory cannot be generalised in work settings. Although Homburg and Stolberg (2006) reported that the awareness of environmental problems leads individuals to engage in PEB at work, they recognised that low measurement reliability might limit the generalisation of their findings. By using TPB to examine employees' behavioural intentions towards the environment in organisational settings, Greaves et al. (2013) recognised that one limitation of their investigation is explained by the cross-sectional design leading to the exclusion of actual behaviour for each scenario (switch the computer off, use video-conference instead of travelling to meetings and recycle as much waste as possible at work). These mitigated results might be explained by

the specificity of work settings that need an appropriate framework for studying employee behaviours on the job. Social exchange theory (SET) is well-established in both the literature on human resources and organisational behaviour and has the potential to examine environmentally sustainable behaviours (Craddock, Huffman, & Henning, 2012).

The primary purpose of the present research was to test whether social exchange theory may offer a framework for studying individuals' pro-environmental behaviours on the job. Social exchange refers to "the voluntary actions of individuals that are motivated by the returns they are expected to bring and typically do in fact bring from others" (Blau, 1964, p. 91). From the employee standpoint (such as adopted in the present research), this means that they are prone to engage in pro-environmental behaviours if they perceive that their organisation at some level demonstrates its engagement for initiating, developing and maintaining favourable work conditions. In addition, the present research aims to also provide other contributions to the environmental literature. First, despite recent calls inviting environmental scholars to undertake research on PEBs in work settings (e.g., Klein & Huffman, 2013; Ones & Dilchert, 2012; Spence, Pidgeon, & Uzzell, 2009) and recent field studies (Cantor, Morrow, & Montabon, 2012; Homburg & Stolberg, 2006; Paillé & Boiral, 2013), investigations providing results on how workers participate in environmental behaviours to help their organisation achieve sustainability remain rare (Steg & Vlek, 2009). The present study provides original data that help to fill this gap. Second, considerable effort has been focused on describing what discourages employees from engaging in pro-

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\* Corresponding author.

E-mail addresses: [Pascal.Paille@fsa.ulaval.ca](mailto:Pascal.Paille@fsa.ulaval.ca) (P. Paillé), [jhmm2007@gmail.com](mailto:jhmm2007@gmail.com) (J.H. Mejía-Morelos).

<sup>1</sup> Tel.: +52 55 5628 4000x6520.

environmental behaviours (Zibarras & Ballinger, 2011). We propose to explore the plausible effect of psychological contract (PC). Recently, Anguinis and Glavas (2013) have suggested that corporate environmental sustainability has the potential to strengthen the PC between employee and employer. Typically, a PC is described as a set of unwritten agreements that shape the long-term relationships in the workplace (Conway & Briner, 2005). In the everyday life of the organisation it is often difficult to respect all prior promises (Robinson & Rousseau, 1994). When employees perceive or believe that a breach occurs (lack of fulfilment), they become less committed to the organisation and less satisfied with their job, which leads to reducing extra efforts at work (Zhao, Wayne, Glibkowski, & Bravo, 2007). In accordance with social exchange tenets, a perceived breach may impede employee engagement in PEBs. Whereas substantial effort has been invested in numerous areas (e.g., human resource management and organisational behaviour, among others), there are few studies examining the consequences of PC-breach which have explored the role of PC in the context of environmental sustainability. The present study attempts to clarify the extent the perception of a breach affects the individual's propensity to perform PEB.

## 2. Literature review and hypotheses

This paper proposes to test a research model (see Fig. 1) in which perceived organisational support, employee job attitudes (satisfaction and commitment) and perceived lack of prior promises are identified as important antecedent variables for performing PEBs.

In work settings, individuals may engage in numerous PEBs to help their organisation achieve environmental sustainability (Mesmer-Magnus, Viswevaran, & Wiernik, 2012). Based on the work from Homburg and Stolberg (2006), PEBs may be direct or indirect. Whereas direct PEBs refer to performing concrete gestures towards improving the environment (e.g., recycling), indirect PEBs refer to worker motivation about providing advice or encouragement to others individuals in the workplace to adopt direct PEBs. Unfortunately, Homburg and Solberg offered very few examples of behaviours associated with these two forms of PEBs. However, Ones and Dilchert (2012) have supplied one of the most comprehensive taxonomies for understanding PEBs in organisational settings. They defined green behaviours as “scalable actions and behaviors that employees engage in that are linked with and contribute to or detract from environmental sustainability” (p. 87). Based on the analysis of more than 2000 activities obtained from a large spectrum of jobs, organisations and industries in the United States and Europe, Ones and Dilchert proposed that employees' actions may impact the natural environment through five main behaviours. The main behaviours include the following: conserving (i.e., reducing

use, reusing, repurposing and recycling); working sustainably (e.g., changing how work is done); avoiding harm (e.g., preventing pollution); influencing others (e.g., encouraging and supporting others); and taking initiative (e.g., initiating programs and policies). Thus, it can be proposed that conserving, working sustainably and avoiding harm are direct PEBs and that influencing others and taking initiatives are indirect PEBs. Finally, in their qualitative review of determinants of PEBs in organisations, Lo, Peters, and Kok (2012) reported that recycling and energy conservation are the most-investigated green behaviours. In addition, by adding (and updating) papers not included in Lo et al.'s review, most research in work settings has focused on direct PEBs (Greaves et al., 2013; Lamm, Tosti-Kharas, & Williams, 2013; Laudenslager, Holt, & Lofgren, 2004; Lo et al., 2012; Zhang, Wang, & Zhou, 2013). Only a few studies have addressed indirect PEBs (Homburg & Stolberg, 2006, study 3; Paillé & Boiral, 2013, study 3). Given that research on indirect pro-environmental behaviours in the workplace remains less developed we addressed indirect PEBs.

We believe that it may be helpful for organisations to adopt SET principles for achieving environmental sustainability. This proposition leads to the following question: to what extent is the adoption of SET principles useful for the organisation? In the environmental literature, a major recurring theme is the influence of organisational support for the employees' willingness to perform PEBs. (e.g., Govindarajulu & Dailey, 2004; Lamm et al., 2013; Paillé & Boiral, 2013; Ramus, 2001; Ramus & Steger, 2000). According to Zibarras and Ballinger (2011), while a lack of support is one of the major impediments to green behaviours at work, supportive decisions by the employer are important facilitators for employees to engage in such behaviours. Support received by partners is acknowledged as a key construct in social exchange (Blau, 1964).

Social exchange theory has emerged recently as a relevant framework for studying PEBs in the workplace (Paillé & Boiral, 2013). SET addresses the study of the main effects of reciprocity on long-term relationships among stakeholders within an organisation. Its core tenet is the reciprocity process, which refers to “the act of giving benefits to another in return for benefits received” (Molm, Schaefer, & Collett, 2007, p. 200). Social exchange between partners in organisational settings occurs under conditions previously described in relevant literature (e.g., Cropanzano & Mitchell, 2005; Lavelle, Rupp, & Brockner, 2007). One of the most important conditions concerns the “goods” that are exchanged. Although these goods are not always easily quantifiable, to be exchanged these “goods” should have some degree of value. Schaninger and Turnipseed (2005) have indicated that the “exchange of ‘gives’ and ‘gets’ between the employee and employer forms the basis for exchange relationships” (p. 211). When high-quality relationships become a standard in organisational settings and contribute to a

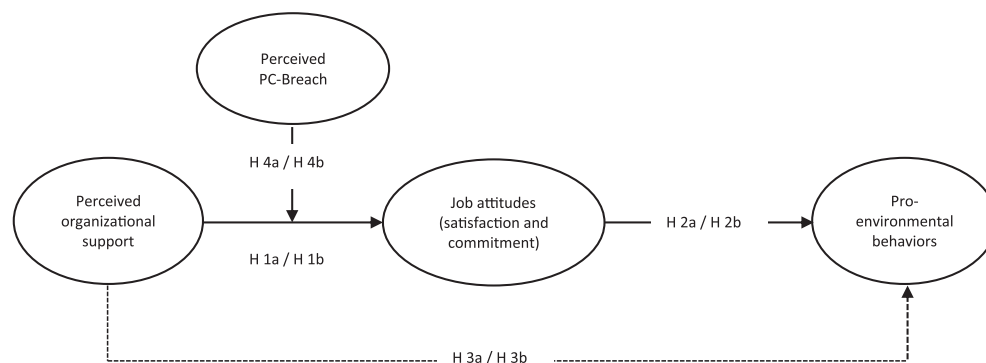


Fig. 1. Research model. Note. Dashed arrow is used to depict indirect relationship; solid arrows represent direct relationships.

positive work atmosphere, employees are more likely to find intrinsic benefits from their membership in the organisation. In such a context, employees are more willing to reciprocate by performing behaviours valued by their employer (Lavelle et al., 2007). If employees are aware that becoming greener is an important objective of their employer, and the employer demonstrates its interest in creating, developing and maintaining high-quality relationships in the long term, individuals might be more prone to reciprocate by performing PEBs on the job. Cropanzano and Mitchell (2005) indicated it is necessary that one participant should initiate creating a context leading to high-quality relationships. By adopting the individual perspective, support given by the employer can be perceived as an initial step of the social exchange process.

Perceived organisational support (POS) is acknowledged as one of the key constructs of SET (Cropanzano & Mitchell, 2005). Based on the norm of reciprocity, POS is typically conceived as an initial move that triggers an exchange process between partners. POS refers to the degree workers perceive the organisation values their contributions, cares about their well-being, shows concern for them, notices when their work is well accomplished and appreciates their extra effort on the job (Eisenberger & Stinglhamber, 2011). When employees feel supported they are more likely to reciprocate by performing behaviours valued by their organisation. Considerable research has been devoted to clarifying the underlying process through which POS transfers its effects on employee willingness to perform well in their job. Job satisfaction and employee commitment to the organisation are particularly important in this process. Job satisfaction is typically regarded as an evaluative judgement that individuals make about their experiences in their given job (e.g., Weiss, 2002). While a negative evaluation of the workplace environment engenders employee dissatisfaction, a positive evaluation generates employee satisfaction. Commitment to the organisation indicates how an employee is tied to their organisation and reflects the extent to which an individual shares the values of his or her organisation, accepts its goals and objectives and makes significant efforts at work (Cooper-Hakim & Viswesvaran, 2005). Job satisfaction and commitment to the organisation are attitudes of interests, especially for predicting work-related outcomes.

Consistent with exchange principles, prior research indicates that POS impacts both employee job satisfaction and employee commitment to the organisation positively (see Riggie, Edmonson, & Hansen, 2009 for meta-analytic findings). As a result, individuals who experience support are more satisfied with their job and are more committed to their organisation. Therefore, the following relationships can be expected:

**Hypothesis 1a.** *POS will be positively related to employee commitment to the organisation.*

**Hypothesis 1b.** *POS will be positively related to job satisfaction.*

The discussion concerning hypothesis 1 suggested that POS positively influences employee job attitudes. Further research has shown that employees are willing to engage in PEBs when they perceive support from their employer (e.g., Cantor et al., 2012; Ramus & Steger, 2000). In addition, drawing on findings from a multinational corporation's case study, Biga, Dilchert, McCance, Gibby, and Doyle Oudersluis (2012) argued that employees who are more satisfied with their job and committed to their organisation are more likely to display direct pro-environmental behaviours on the job. These behaviours include working sustainably or exhibiting conserving behaviours (p. 371). Based on these prior findings, POS is positively related to job attitudes and if job attitudes positively influence PEBs, then POS has an indirect effect on

PEB via job attitudes. Recent field studies supported this proposition and demonstrated a mediating effect of employee commitment (Lamm et al., 2013; Paillé & Boiral, 2013). However, there is no research in the current empirical literature reporting a mediating effect for job satisfaction on the relationship between POS and PEB. Despite the scarcity of empirical data the existing research provides interesting findings and suggests it is possible to infer a mediation effect for job satisfaction. Tudor, Barr, and Gilg (2008) reported the results of a case study (mixing several tools such as ethnographic study, interviews, waste bin analyses and questionnaires). The results indicate that employees received support from management although sustainability was not declared as a priority. Furthermore, job satisfaction facilitates the adoption of sustainable waste behaviour. While no tests implying support from management, employee satisfaction and sustainable waste behaviour were performed, a mediation effect can be assumed. Therefore, given the above developments, the following relationships can be predicted:

**Hypothesis 2a.** *Employee commitment and pro-environmental behaviours will be positively related.*

**Hypothesis 2b.** *Job satisfaction and pro-environmental behaviours will be positively related.*

**Hypothesis 3a.** *Employee commitment to the organisation will mediate the relationships between POS and pro-environmental behaviours.*

**Hypothesis 3b.** *Employee job satisfaction will mediate the relationships between POS and pro-environmental behaviours.*

We propose that POS has a positive, indirect effect on pro-environmental behaviours through employee job attitudes. Therefore, in accordance with the social exchange framework employees are willing to help their organisation become greener if they are encouraged. It is suggested in the relevant literature that people at work develop systematically friendly behaviours or try to act by respecting the natural environment in their job. One neglected topic is that employees are also likely to harm the natural environment. Based on the definition given by Ones and Dilchert (2012), green behaviours are scalable actions by which employees may also detract from environmental sustainability voluntarily. An employee may harm the environment by adopting voluntarily unfriendly actions towards the natural environment (e.g., waste paper) or by choosing not to perform friendly behaviours towards sustainability (e.g., failure to use appropriate containers).

Consistent with the social exchange framework, we propose considering the question of transgression by stressing the plausible effect of a psychological contract (PC) on the relationships between POS, job attitudes (i.e., satisfaction and commitment) and pro-environmental behaviours. Investigating the influence of a PC in the context of environmental sustainability may be helpful for exploring other possible causes of employee unwillingness to engage in green behaviours in the workplace. As such, PC-Breach may be considered an obstacle leading to employee disengagement from environmental concerns. This proposition is consistent with Gifford (2011), who has established a list of psychological barriers inhibiting friendly behaviours towards the environment (i.e., acting in climate-friendly ways). Gifford indicated that individuals' perceptions of inequity might explain their inaction for behavioural change. Given that perceived inequity is acknowledged as one of the key components of a PC-Breach in work contexts (Conway & Briner, 2005), Gifford's contention is relevant for the current study. Gifford suggests exploring the extent PC-Breach affects employee willingness to engage in PEBs.

PC refers to "a way of representing the employment relationship in the mind of the employee" (Furnham & Taylor, 2004, p. 8). PC is

another construct related to social exchange theory (Aselage & Eisenberger, 2003). Given the norm of reciprocity that regulates the relationships among partners (e.g., an organisation and an employee) by adopting the individual's point of view an organisation should meet its obligations, especially those that have been made previously (Conway & Briner, 2005). A breach occurs if an individual believes the employer has broken its prior promises (Coyle-Shapiro, 2002). This discrepancy may be explained by renegeing (e.g., lower performance on the job than expected) or incongruence (e.g., honest misunderstanding by the employer; Morrison & Robinson, 1997). Empirical support indicates the failure to fulfil prior promises by organisations is the rule rather than an exception (Robinson & Rousseau, 1994). Meta-analytic findings of Zhao et al. (2007) reported that PC-Breach diminishes employee commitment to the organisation (*corrected*  $r = -.32$ ,  $k = 20$ ,  $N = 12,523$ ) and job satisfaction (*corrected*  $r = -.45$ ,  $k = 28$ ,  $N = 14,252$ ), leading employees to restore the balance by diminishing their efforts at job (e.g., Suazo & Stone-Romero, 2011). However, Morrison and Robinson (1997) have suggested that the perception of discrepancy between what was previously promised and what was actually fulfilled seems to be less important than the anticipated advantages related to the prior promises. This process has been labelled "second order outcomes" by Morrison and Robinson (1997) and more recently, a "knock-on-effect" by Parzefall and Coyle-Shapiro (2011). For example, a new employee may hope for rewards if it was previously said or suggested that efforts during the first years of employment lead to revaluing salary. Numerous events may influence the everyday life of business over time (Conway & Briner, 2005). Therefore, despite the willingness to fulfil the content of a PC-Breach that has been previously discussed during recruitment, it may be difficult for an employer to respect its agreements with a given employee. As result, the new employee may perceive that this specific obligation has not been fulfilled. Although this employee is aware that prior promises have not been respected, it has been demonstrated that supportive decisions received from his or her employer diminishes the negative effect of a perceived lack of fulfilment on work-related outcomes (Dulac, Coyle-Shapiro, Henderson, & Wayne, 2008). No empirical support exists in the current literature regarding the environment and how a PC-Breach affects the relationship between POS and job attitudes. However, upon drawing from Gifford's contentions and the findings of Dulac et al. (2008), it seems reasonable to assume that the combination of PC-Breach and POS may help employees to overcome their perception that prior promises have not been respected. Therefore, the following relationship can be expected:

**Hypothesis 4a.** *The relationship between POS and employee commitment will be moderated by the perception of PC-Breach.*

**Hypothesis 4b.** *The relationship between POS and job satisfaction will be moderated by the perception of PC-Breach.*

### 3. Method

#### 3.1. Research context, sample and participants

A cross-sectional field study of 1500 alumni from a major Mexican university enrolled in a business program was conducted to examine the relationships between the variables. All of the participants were working at the time of the study. Participants in our sample worked in different activity sectors and at different firms. This information was verified for all cases. The rationale of this choice is based on the lack of research performed in Mexico (for an exception see Cantor et al., 2012). The participants were invited

to participate on a voluntary basis after reading the general objectives of the study and were informed of the ethical guidelines. All of the participants gave their consent to be involved in the research. The participants were assured that information written in the questionnaire was confidential, anonymous and would be used for research purposes only. Each questionnaire was answered in 25–30 min at the University classroom.

Because the study was conducted in a Spanish-language context, the procedure recommended by Brislin (1980) was followed before sending out the questionnaire. The measurement scales were subjected to a double translation process to eliminate discrepancies (English to Spanish and Spanish to English). The questionnaire was refined through two pilot tests (Kline, 2000) with ten to fifteen participants each. The main goal of the pilots was to identify items that were unclear in Spanish. Feedback from the first pilot indicated that some items were ambiguous and we clarified each item to improve the precision. This refinement was performed to avoid an interpretation bias from interviewees. The second pilot indicated no misunderstanding issues.

There were 535 questionnaires returned and the response rate was 35.7%. Of the 535 completed questionnaires, 86 were excluded because of incomplete data or because the respondent was not currently employed. The final sample included 449 people employed at the time of the study. There were 236 male respondents (52.5%) and 213 female respondents (47.5%). The age of the participants ranged between 21 and 62 years, and the average age was 32.5 years ( $SD = 6.8$  years). The number of years of professional experience ranged between one and 42 years, and the average was 11.3 years ( $S.D. = 6.7$  years). The number of years in the organisation ranged from less than one year to 41 years, for an average tenure of 8.7 years ( $S.D. = 9.2$ ). At the time of the survey, all participants worked in a traditional industry.

#### 3.2. Measurement

POS was measured with a short form of four items (e.g., my organisation really cares about my well-being at work) proposed by Stinglhamber, de Cremer, and Mercken (2006). In the present study, the scale provided good reliability ( $\alpha = .91$ ).

Employee commitment to the organisation was measured using a three-item scale (e.g., I am proud to belong to my organisation) developed by Bentein, Stinglhamber, and Vandenberghe (2002). In the present study, the scale provided good reliability ( $\alpha = .75$ ).

Employee job satisfaction was measured with a selection of three among five items of the Hackman and Oldham (1975) scale (e.g., I am generally satisfied with the kind of work I do in this organisation). The scale provided good reliability ( $\alpha = .89$ ).

PC breach was measured with a 5-item scale (e.g., I have not received everything promised to me in exchange for my contributions) developed by Robinson and Morrison (2000). The scale provided good reliability ( $\alpha = .82$ ).

Pro-environmental behaviours were measured using the scales developed by Boiral and Paillé (2012). The eco-initiatives were measured with three items (e.g., I make suggestions to my colleagues about ways to protect the environment more effectively, even when it is not my direct responsibility). Eco-civic engagement was measured with four items (e.g., I undertake environmental actions that contribute positively to the image of my organisation). Eco-helping was measured with a three item scale (e.g., I encourage my colleagues to express their ideas and opinions on environmental issues). In accordance with Boiral and Paillé (2012), a confirmatory factor analysis indicated that a three-factor solution (consisting of high-order factors) yields a good fit of the data, where  $\chi^2 (29, N = 449) = 97.58$ ,  $p < .001$ , CFI = .97, NNFI = .96, RMSEA = .07, and offers a better fit than a one-factor solution (first-

order factor),  $\chi^2(32, N = 449) = 237.29, p < .001, CFI = .93, NNFI = .91, RMSEA = .12$ . The internal consistency for eco-initiatives, eco-civic engagement and eco-helping were .78, .89 and .89, respectively.

### 3.3. Analyses

The two-stage process suggested by Anderson and Gerbing (1988) was followed to assess the data. This process suggests assessing the measurement model before performing structural equation modelling. A Chi-square statistic and several other fit indices were used to analyse the data. The root mean square error of approximation (RMSEA), the comparative fit index (CFI) and the non-normed fit index (NNFI) were used. Concurrent values lower than .08 for the RMSEA and greater than .90 for both the NNFI and CFI are reflective of having good and acceptable fits to the data, respectively (Medsker, Williams, & Holahan, 1994). Finally, while hypothesis 3 implies testing mediation, hypothesis 4 requires testing a moderation effect. Briefly, the mediation effect was tested by using a bias-corrected bootstrap technique because of its statistical power (Cheung & Lau, 2008). The moderation effect was performed by using Ping's (1996) procedure.

## 4. Results

### 4.1. Checking common method variance (CMV), confirmatory factor analysis, assessment of reliability and discriminant validity

Given that in the present research all variables have been measured by using a single source, the first step was to check whether bias due to CMV might inflate the findings and cause misinterpretation. As a frequently used technique (e.g., Boiral & Paillé, 2012; Carson, Madhok, Varman, & John, 2003), Harman's single-factor test recommends factorial analysis of a study's item pool. Although there are no specific guidelines (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), the assumption underlying the test is that if there is a substantial amount of common method variance in the data, a single factor will emerge from the factor analysis when all variables are entered together (Parkhe, 1993). In addition, these items should load on different factors. The results of factor analyses (rotated and unrotated) indicated that the items were loaded onto seven different factors. The first factor accounted for 36.23% of the total variance explained (79.64%). Given that no "general factor" emerged from the preliminary analysis, we inferred that common variance bias was not a significant issue.

A confirmatory factor analysis was performed to assess the psychometric properties of the measures. The measurement model provided an excellent fit to the data ( $\chi^2 = 437.0, df = 226, p < .001, CFI = .97, NNFI = .97, RMSEA = .04$ ). All indicators loaded significantly ( $p < .001$ ) onto their respective constructs. Table 1 reports the reliability (Jöreskog's  $\rho$ ) for each construct and the average variance extracted (AVE), which gives the proportion of total variance explained by the latent variable. Means, standard-deviations (SD) and pair-wise correlations are also reported. Values above .50 are recommended for AVE (Hair, Anderson, Tatham, & Black, 1998). In addition, values above .70 are expected for Jöreskog's  $\rho$  (Fornell & Larcker, 1981). The values for AVE range from .56 (commitment to the organisation) to .75 (job satisfaction), while the values for Jöreskog's  $\rho$  range from .78 (commitment to the organisation) to .95 (PEBs). Based on Fornell and Larcker (1981), discriminant validity was assessed by comparing each pair of constructs and the average of their respective AVE and shared variance (consisting in  $r$  square and given in brackets in Table 1). If for two given constructs the average AVE is higher than the shared variance the discriminant validity of the two constructs is shown.

**Table 1**  
Correlation matrix and psychometric properties ( $N = 449$ ).

	POS	PC-B	JS	CO	PEB	AVE	Jöreskog's $\rho$
1. POS	–					.74	.92
2. PC-B	-.62(.38)**	–				.72	.91
3. JS	.69(.47)**	-.60(.36)**	–			.75	.90
4. CO	.56(.31)**	-.53(.28)**	.61(.36)**	–		.56	.78
5. PEBs	.19(.03)**	-.10(.01)*	.11(.01)*	.19(.03)**	–	.66	.95
	POS	PC-B	JS	CO	PEB		
Mean	14.2	12.8	11.9	11.8	33.3		
SD	4.1	4.1	2.8	3.9	9.1		
Max	20	20	15	15	50		
Min	5	5	3	3	10		

Notes. \*\* $p < .01$ , \* $p < .05$ ; POS, perceived organisational support; PC-B, perceived breach; JS, job satisfaction; CO, commitment to the organisation; PEBs, pro-environmental behaviours; AVE, Average variance extracted.

Table 1 shows that the requirement was met for each pair of constructs. Therefore, the results indicate that discriminant validity was shown.

### 4.2. Hypotheses testing

Using AMOS (Arbuckle, 2009), the model tests were based on the covariance matrix and were estimated using maximum likelihood estimation. The research model fitted the data well, ( $\chi^2 = 465.55, df = 234, p < .001, CFI = .97, NNFI = .96, RMSEA = .04$ ).

Hypothesis 1a predicted a positive relationship between POS and employee commitment to the organisation. H1a was supported by the data ( $\beta = .371, SE = .048, t\text{-value} = 7.731, p < .001$ ). Hypothesis 1b predicted a positive relationship between POS and job satisfaction. H1b was supported by the data ( $\beta = .506, SE = .041, t\text{-value} = 12.262, p < .001$ ). Hypothesis 2a predicted a positive relationship between employee commitment and PEBs. H2a was supported by the data ( $\beta = .147, SE = .058, t\text{-value} = 2.533, p < .011$ ). Hypothesis 2b predicted a positive relationship between job satisfaction and PEBs. H2b was not supported by the data ( $\beta = -.100, SE = .071, t\text{-value} = -1.417, p = .157$ ).

Hypotheses 3a and 3b predicted that employee commitment to the organisation and job satisfaction mediates the relationship between POS and PEBs, respectively. These mediation effects (with  $n = 5000$  bootstrap re-samples) were tested by directly assessing the significance of the indirect effect of the independent variable (POS) on the dependent variable (PEBs) through the mediators (employee commitment to the organisation). Mediation is demonstrated when the bias-corrected confidence interval (95%) of the indirect does not include zero (Preacher & Hayes, 2008). The standardized direct effect of POS on PEB is .154. The 95% bias-corrected confidence intervals for this direct effect are between .018 (lower bound) and .312 (upper bound), with a  $p$ -value  $< .029$  for the two-tailed significance test. The standardized indirect effect of POS on PEB through employee commitment to the organisation was .055. The 95% bias-corrected confidence intervals for this indirect effect are between .016 (lower bound) and .151 (upper bound), with a  $p$ -value  $< .001$  for the two-tailed significance test. These results lead to the conclusion that the relationship between POS and PEB was partially mediated by employee commitment to the organisation. It was estimated that the mediator accounted for 61.1% of the variance (indirect effect/total effect; .055/.090). This means that the percentage of the total effect of POS on PEB that was mediated through employee commitment to the organisation was approximately 61%. The standardized indirect effect of POS on PEB through job satisfaction was .014. The 95% bias-corrected confidence intervals for this indirect effect are between  $-.076$  (lower bound) and .092 (upper bound), with a  $p$ -value = .918 for the two-

tailed significance test. Based on [Shrout and Bolger \(2002\)](#), we concluded that no mediation was at work because the 95% bias-corrected confidence interval contains zero. Therefore, while support was provided for Hypothesis 3a, no support was found for Hypothesis 3b.

Hypotheses 4a and 4b predicted that PC-Breach moderates the relationship between POS and employee commitment to the organisation and job satisfaction. The moderation effect was examined by using the approach defined by [Ping \(1996\)](#) that draws on the two-step procedure of [Anderson and Gerbing \(1988\)](#). To avoid multicollinearity, the predictor (POS) and the moderator (PC-Breach) have been mean-centred before computing the product terms (POS  $\times$  PC-Breach) ([Cohen, Cohen, West, & Aiken, 2003](#)). [Table 2](#) shows the results for the moderator hypotheses (H4a and H4b). There was no moderation effect found for the relationship between POS and employee commitment providing no support for H4a. The results reported a moderation effect for the relationship between POS and job satisfaction, which led to the conclusion that support was found for H4b.

## 5. Discussion and conclusion

### 5.1. Contributions of the study

The present research was performed to improve our understanding of what drives employees to engage in pro-environmental behaviours on the job. To reach this objective, original data were gathered to test an original research model in which perceived organisational support, perceived breach, employee job satisfaction and employee commitment to the organisation are examined as determinants of PEBs. This study makes three main contributions to the relevant literature.

First, social exchange theory has been used as a guideline for examining the employee willingness to engage in PEB. [Craddock et al. \(2012\)](#) noted that there is insufficient investigation of the effects of social exchange related to environmentally sustainable behaviour in organisational settings. By addressing this neglected issue, the present research makes an important contribution to environmental literature. VBN theory ([Andersson et al., 2005](#)), theory of planned behaviour ([Greaves et al., 2013](#)) and stress cognitive theory ([Homburg & Stolberg, 2006](#)) have been recently tested for predicting friendly behavioural intent towards the environment. Although for different reasons, each of these attempts has provided mitigated results. Social exchange theory does not challenge these three theories, but proposes an additional framework that offers an alternative for predicting PEBs in the workplace ([Paillé & Boiral, 2013](#)). Drawing on reciprocity between partners in a given relationship, social exchange theory is particularly relevant in organisational settings when employee behaviours fall into the category of behaviours performed on a voluntarily basis. [Ones and Dilchert \(2012\)](#) argued that PEBs may fall in this category when employees work for organisations in a traditional

industry. In contrast, when employees work in a green industry, PEBs should be conceived as a formal task related to the job they hold. This is a key difference that might allow a better understanding of how a theoretical framework is more appropriate for modelling the determinants leading the individuals to adopt pro-environmental behaviours in work settings. As we have already highlighted above, in a context of high-quality relationships, partners give and get what is valued by each other ([Schaninger & Turnipseed, 2005](#)). In a traditional industry in which PEBs are not defined as a formal task in the job, organisations should define the protection of the natural environment as an important concern. Organisations should promote a culture of environmental sustainability and develop an internal climate fostering high-quality relationships between partners. Our findings supported this proposition.

One interesting result is that a perceived breach has a moderating effect only on the relationship between POS and employee job satisfaction, and no interaction was reported for the relationship between POS and employee commitment to the organisation. By exploring the influence of a PC-Breach on the high-quality relationships between organisations and staff the present study contributes by adding another obstacle leading to employee disengagement from pro-environmental behaviours on the job. Current literature on the environment indicates that internal barriers to engaging in sustainability are numerous. These obstacles might be found at the organisational level, at the supervisor level or at the employee level (see, among others, [Gifford, 2011](#); [Govindarajulu & Dailey, 2004](#); [Plank, 2011](#); [Ramus, 2001](#); [Zibarras & Ballinger, 2011](#)). In the present research, our findings reveal that the employee perception of a discrepancy between what was previously promised and what was provided by the organisation may be conceptualized as an obstacle to performing PEBs. Interestingly, the findings reported in the present research (see [Table 2](#)) are consistent with prior meta-analytic findings by [Zhao et al. \(2007\)](#). In the context of environmental sustainability, the perception of breach negatively affects employee job satisfaction and employee commitment to the organisation. Given that these two job attitudes are positively related to pro-environmental behaviours ([Biga et al., 2012](#); [Lamm et al., 2013](#); [Paillé & Boiral, 2013](#)), this means that the perception of breach may lead employees to put less effort towards environmental causes while on the job. For example, if employees are dissatisfied with their job or have limited organisational commitment they are less prone to become environmentally engaged in their daily tasks ([Mesmer-Magnus et al., 2012](#)). Nevertheless, our findings indicated that POS has moderated the negative effect of perceived breach on employee job satisfaction. In addition, no moderation was found for the relationship between POS and employee commitment to the organisation. In the particular context of sustainability, when employees feel supported by their organisation they are less concerned by the perception of lack of fulfilment of prior promises. In other words, PC-Breach is not an obstacle for performing PEBs when individuals experience high-quality exchanges with their organisation. Although a PC-Breach was identified as a possible impediment for achieving environmental sustainability, it is important to note this result should be analysed with regard to a social exchange framework. With this caveat in mind, the findings make sense with regard to using social exchange for predicting PEBs in organisational settings. This is especially true when organisations seek to become greener by instituting policies to decrease environmental impacts.

### 5.2. Practical perspectives

Employees tend to gauge the capacity of their employer to fulfil their obligations ([Conway & Briner, 2005](#)). In the specific context of

**Table 2**  
Results of moderation.

	$\beta$	SE	T	p-value	$\Delta R^2$
<u>Dependent variable = employee commitment</u>					
POS	.183	.053	3.485	.001	
PC-breach	-.202	.048	-4.167	.001	.37***
POS $\times$ PC-breach	.018	.030	.605	.545	.00
<u>Dependent variable = job satisfaction</u>					
POS	.506	.041	12.262	.001	
PC-breach	-.265	.042	-6.311	.001	.52***
POS $\times$ PC-breach	.080	.027	2.339	.019	.02**

Note. \*\*\* $p < .001$ , \*\* $p < .02$ .

environmental sustainability, our results indicate that a failure to keep prior promises by an employer can be analysed as an internal barrier likely to disrupt the employees' willingness to engage in PEBs. When an employee experiences a PC breach, it can have devastating consequences in the environmental sustainability context. However, as explained above (see literature review) employees are aware that their employers face external constraints leading to the inability to fulfil obligations. From a social exchange perspective, employers should be aware that appropriate management practices may help employees to overcome frustrations tied to their perception that a PC breach occurred. By making supportive decisions employers can send a positive signal to employees indicating their commitment to maintaining high-quality employment relationships (Eisenberger & Stinglhamber, 2011). In so doing employers may avoid their sense of frustration as a result of a perceived PC breach (Aselage & Eisenberger, 2003).

### 5.3. Limitations

The present research is not without limitations. First, by following recommendations of Podsakoff et al. (2003), appropriate tests were performed to avoid potential threats due to CMV. Despite this precaution, an important limitation is the use of self-reporting measures that may inflate the findings and provide spurious conclusions. However, the use of self-reports in environmental psychology as a way to measure behaviours towards the environment is an unresolved issue (Steg & Vlek, 2009). Future research could add more sources (self-rating, supervisor-rating and co-worker-rating) to neutralize the threat of common variance.

A second limitation is that in the context of social exchange and to reciprocate in the appropriate manner, employees should stress that harming the environment as little as possible is an important cause promoted by their organisation (Paillé & Boiral, 2013). This implies that whether employees share this cause, they are (un) likely to reciprocate by engaging in environmentally friendly behaviours in their jobs. Therefore, it is plausible to assume that sharing the environmental cause may affect the social exchange process.

Another potential limitation of the present research is that breach was assessed based on an overall measurement. Given this choice, it remains difficult to determine which individuals' work experiences related to the job lead to the perception of psychological contract breach. Reneging (intentional unwillingness to fulfil prior promises) or incongruence (honest misunderstanding about contents of contract terms) may form the basis of breach (Morrison & Robinson, 1997). Although perception of psychological contract breach may be regarded as an internal barrier, a closer look might take into account the source of breach (reneging or incongruence).

Finally, given that data were collected among Mexican employees, it is important to emphasise that the data generated by the field study are linked to a specific cultural context. Therefore, caution should be exercised because the findings may not be easily generalised to other cultural contexts.

### 5.4. Future research

Future studies should take into account the limitations highlighted in the previous section. In addition, there are three possible directions for future research. First, several theories have been tested recently for predicting employees' willingness to perform PEB in work settings. Although each of these frameworks is conceptually relevant, limitations have been highlighted by their respective promoter. Thus, when these theories are used in an organisational context, strengths and weaknesses emerged. Over

the last few years, this difficulty has been overcome by combining several theories. In this way, the TPB has been associated with VBN theory (Cordano, Welcomer, Scherer, Pradenas, & Parada, 2011; Oreg & Katz-Gerro, 2006) or with norm-activation theory (Wall, Devine-Wright, & Mill, 2007), to provide further explanations on the individual decision to adopt PEB. Although undertaken in private or public settings, these attempts offer interesting insight for using the combination of theories in the workplace. Very few studies have used this approach (for a notable exception, see the research conducted by Wall et al., 2007). Thus, future investigations might continue these efforts by combining SET, TPB and VBN. In so doing, research could provide a broader understanding of PEBs in workplace settings. Second, the present study investigates the effects of a perceived lack of fulfilment of PEBs. Our main intention was to explore PC-Breach as a possible obstacle in the context of high-quality relationships among partners in work settings. When cause is attributed to an inability to respect the initial agreement rather than intentional unwillingness to fulfil prior promises, individuals tend to be less inclined to react negatively (Parzefall & Coyle-Shapiro, 2011). This possibility might be examined in future investigations. Finally, future research could replicate and extend the research model by including the measurement scales of direct PEBs to offer a broader explanation of the effects of PC-Breach.

## 6. Conclusion

Stern (2000) claimed that friendly environmental behaviours in organisational settings are explained by different determinants than those who predict environmental behaviours in the private sphere. Using social exchange tenets, it is our hope that the present research contributes to explaining the individual motivation to perform pro-environmental behaviours on the job.

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