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Eco-Helping and Eco-Civic Engagement in the Public Workplace

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ABSTRACT

Despite growing interest in the environmental performance and management of public organizations, relatively little is known about the steps individual public employees are taking at their own discretion to promote environmental sustainability and environmental stewardship in the workplace. This article examines public employees' participation in eco-helping and eco-civic engagement in the workplace. Eco-helping occurs when employees encourage colleagues to perform pro-environmental behaviors in the workplace; eco-civic engagement refers to employees' voluntary participation in the organization's pro-environmental activities. The research objective is to identify motivational and attitudinal correlates of eco-helping and eco-civic engagement in the public workplace. Findings suggest that environmental concern and public service motivation (PSM) have positive relationships with both eco-helping and eco-civic engagement in the public workplace. Organizational commitment, however, is only positively associated with eco-civic engagement. The possible meaning of these findings for future research is discussed.

KEYWORDS

eco-civic engagement;
eco-helping; organization
commitment; public service
motivation; sustainability

As stewards of public resources both financial and environmental, many public organizations are showing increased operational awareness of environmental sustainability. Scholars have observed that municipalities across the United States have adopted formal policies and internal initiatives meant to promote sustainability and mitigate the environmental costs of their operations (e.g., Cogburn, 2004; Wang, Van Wart, & Lebrede, 2014). The trend of promoting environmental sustainability by public organizations is also evident in Europe (e.g., Agyeman & Evans, 2004), Asia (e.g., Rowe & Guthrie, 2010), and transnational local government networks (e.g., Bulkeley & Betsill, 2005). Scholars have argued that environmental sustainability deserves primary attention in the operations of public organizations because of the normative, ethical, economic, social, and political importance of the “environmental imperative” (Fiorino, 2010, p. S82) and thus is a key public value in today's society (Jørgensen & Bozeman, 2007).

Given this research interest in public sector environmental stewardship at the organization level, there is surprisingly little research examining employee participation in discretionary pro-environmental behaviors in the public workplace (one exception is Azhar, 2012). The current study focuses on two specific types of pro-environmental behaviors in the workplace: eco-helping and eco-civic engagement. Eco-helping is defined as “voluntarily helping colleagues to better integrate environmental concerns in the workplace,” and eco-civic engagement refers to “voluntary participation in an organization’s environmental programmes [*sic*] and activities” (Boiral & Paillé, 2012, p. 442). These are two of the three dimensions of organizational citizenship behavior directed toward the environment (OCB-E) (Boiral & Paillé, 2012; Paillé & Boiral, 2013). The third dimension of OCB-E, eco-initiative, has been discussed elsewhere regarding its determinants in the public workplace (Stritch & Christensen, 2016), but eco-helping and eco-civic engagement in the public workplace remain unexplored.

The research objective of this article is to identify the motivational and attitudinal correlates of eco-helping and eco-civic engagement in the public workplace. Understanding the answer is important, since, in the aggregate, these behaviors can enhance a public organization’s overall environmental performance. There are two reasons that suggest eco-helping and eco-civic engagement can contribute to an organization’s environmental performance. First, both theory (Daily, Bishop, & Govindarajulu, 2009) and empirical evidence (Paillé, Chen, Boiral, & Jin, 2014; Roy, Boiral, & Paillé, 2013) provide support for the relationship among individual-level OCB-Es and an organization’s overall environmental performance; eco-helping and eco-civic engagement are two key facets of OCB-E. Second, improving environmental performance in the workplace includes managing complex pro-environmental tasks and therefore entails team efforts; eco-helping and eco-civic engagement behaviors enhance collaboration and mutual support among colleagues, which can create better collective efforts toward environmental improvement and performance in the workplace (Boiral & Paillé, 2012). Since both environmental conservation and operational sustainability are important aspects of a public organization’s stewardship of public resources, it is important to understand the processes that are correlated with an employee’s supporting and encouraging higher levels of co-worker and organizational participation in behaviors that support these objectives.

The present exploratory study examines the correlates of eco-helping and eco-civic engagement in the context of a large municipal organization that has taken steps to signal the importance of environmental sustainability to its employees. The study begins by drawing from the management literature of both the public and the private sector to develop a framework for understanding the motivational bases of eco-helping and eco-civic engagement in the public workplace.

Eco-helping and eco-civic engagement in the public workplace

In the environmental psychology literature, two alternative frameworks have largely been used to explain and predict individual-level pro-environmental behaviors (Bamberg & Möser, 2007). The first theoretical framework, the theory of planned behavior (TPB), adopts a self-interest, rational-choice perspective (pro-environmental intentions and behaviors as the calculation of rewards and punishments) and considers social norms (social/external guidelines or pressures for action) as a key antecedent of behavior intention (Ajzen, 1991; Harland, Staats, & Wilke, 1999; Kaiser, Wölfling, & Fuhrer, 1999). By contrast, the second theoretical framework, the norm-activation model (NAM) (Schwartz, 1977), considers moral and personal norms (internalized beliefs of right and wrong) as direct determinants of environmentally friendly behaviors (Hunecke, Blöbaum, Matthies, & Hoger, 2001).

The relevance of the theoretical contest framing pro-environmental behaviors in the workplace setting (Araujo, 2012; Lülfs & Hahn, 2013) is recognized here, and it is further recognized that while norms are key factors in the contest, “one model has not dominated in the literature” (Lamm, Tosti-Kharas, & Williams, 2013, p. 167). Instead, the study applies the literature regarding OCB-E (in so doing it utilizes the work of Paillé and Boiral, such as Boiral & Paillé, 2012; Paillé & Boiral, 2013), which largely follows the rationale of the TPB approach and social exchange theory (SET) built on the rational choice perspective.

Within the chosen theoretical frame, understanding eco-helping and eco-civic engagement entails a review of organizational citizenship behaviors directed toward the environment (OCB-E). The OCB construct refers to discretionary behaviors, not recognized by a formal reward structure, that in aggregate promote effective functioning of the organization (Organ, 1988, p. 4). In the context of the growing interest in organizational environmental performance (e.g., Russo & Fouts, 1997), scholars have begun to investigate OCBs directed toward the environment (OCB-E) both in private organizations (Boiral & Paillé, 2012; Chowdhury, 2013; Daily et al., 2009; Paillé & Boiral, 2013) and in public organizations (Stritch & Christensen, 2016). Daily et al. (2009) define OCB-E as “discretionary acts by employees within the organization not rewarded or required that are directed toward environmental improvement” (p. 246). In aggregate, these behaviors enhance the environmental performance of the organization. However, for public organizations, OCB-E not only promotes ecological sustainability at the organization level but also demonstrates a broader commitment to the stewardship of public resources.

According to Boiral and Paillé (2012), eco-helping and eco-civic engagement are subdimensions of OCB-E. Eco-helping is supportive behavior whereby individual employees promote, foster, and support sustainable and

pro-environmental actions among their co-workers and in their organization. Helping behaviors are cooperative and facilitate interdependence and cooperation (Van Dyne & LePine, 1998). Examples of eco-helping might include explaining environmental procedures to new employees, encouraging co-workers to recycle or conserve energy, or asking colleagues to get involved in an organization's environmental initiatives (Boiral & Paillé, 2012). Eco-civic engagement refers to voluntary participation in pro-environmental programs and events sponsored by an organization (Boiral & Paillé, 2012). Eco-civic engagement helps to achieve the organization's environmental objectives and enhance its "green" image among its members and stakeholders. Examples of eco-civic engagement might include attending voluntary training programs or workshops to learn more about fostering sustainability within an organization (Boiral & Paillé, 2012).

As is described more fully below, the organization chosen for study is one that has signaled its commitment to environmental performance at the organization level. In this exploratory study, this organizational signaling is explicitly signaled in each of the hypotheses. The city in the study is not alone, however, in taking steps to communicate the importance of environmental performance. A number of cities and municipalities in the United States have taken similar actions that might serve as signals of commitment to sustainability and environmental performance (Opp & Saunders, 2013). For example, more than 120 U.S. cities have committed to the Compact of Mayors, an agreement among participating cities around the world to reduce city-level greenhouse gas emissions, report local climate-action data, and meet national environmental protection standards. Moreover, nearly 600 U.S. cities have joined the International Council for Local Environmental Initiative (ICLEI), which promotes a series of pro-environmental practices, such as climate-action reporting, sustainable procurement, and renewable energy initiatives. In sum, a significant number of U.S. cities have demonstrated their efforts to promote environmental sustainability, thereby expanding the applicability of the findings.

Environmental concern, eco-helping, and eco-civic engagement

Daily et al. (2009) identify individual concern for the environment as a key determinant of participation in OCB-E, stating that "an individual's personal environmental concern will prove to be the strongest predictor of his or her propensity to engage in OCB-E" (p. 247). Thus individuals who identify strongly with an issue or cause are expected to be more likely to advocate on its behalf. With respect to pro-environmental behavior, a number of studies attempt to explain the relationship between pro-environmental behavior and personal values (e.g., Nordlund & Garvill, 2002; Stern & Dietz, 1994). Stern and Dietz (1994) concluded that individuals with collective values and those who value the environment for its own sake are more likely than

others to be concerned about environmental problems (as cited in Nordlund & Garvill, 2002, p. 753). Nordlund and Garvill (2002) found support for a values-based approach using the NAM where a personal norm of “a feeling of moral obligation to protect the environment” (p. 743) predicted participation in pro-environmental behaviors.

While scholars have examined environmental concern as a driver of individual pro-environmental actions, such as water conservation and recycling (e.g., Poortinga, Steg, & Vlek, 2004; Stritch & Christensen, 2016), environmental concern is also likely to support eco-helping (encouraging colleagues to embed environmental concern in their workplace) and eco-civic engagement (participating in pro-environment programs and activities) in the public workplace. Moreover, if their organizations have highlighted the importance of environmental sustainability, it is expected that individuals with higher levels of environmental concern will be more likely to take steps to mitigate their own environmental impact in their workplace. The following hypotheses will be explored:

- H1a: Individual environmental concern is positively related to eco-helping in a public workplace that has signaled the importance of environmental sustainability.
- H1b: Individual environmental concern is positively related to eco-civic engagement in a public workplace that has signaled the importance of environmental sustainability.

Organizational commitment, eco-helping, and eco-civic engagement

Organizational commitment is a measure of one’s attitudinal commitment to the organization one works for. Mowday, Steers, and Porter (1979) described this form of attitudinal commitment as “a state in which an individual identifies with a particular organization and its goals and wishes to maintain membership in order to facilitate these goals” (p. 225). Scholars distinguish commitment to the organization (entities) from a commitment to its goals and policies (behaviors) (Meyer & Herscovitch, 2001). Moreover, commitment or acceptance of organizational goals is considered to be a dimension of organizational commitment (Angle & Perry, 1981; Mayer & Schoorman, 1992). Organizational commitment is a high-level construct distinct from other goal-specific commitments.

Previous studies have offered strong empirical support for organizational commitment as a predictor of OCB (e.g., O’Reilly & Chatman, 1986; Williams & Anderson, 1991). Moreover, recent research has developed the conceptual relationship between organizational commitment and OCB-E. In their conceptual model, Daily et al. (2009) propose that there is a positive relationship between organizational commitment and OCB-E (see also Chowdhury, 2013).

However, empirical analyses have offered mixed results. Paillé and Boiral (2013) find that organizational commitment has a direct positive effect on a unidimensional measure of OCB-E, but in Paillé, Boiral, and Chen's study (2013), there was not a significant relationship among the same measures. However, Paillé, Boiral, and Chen (2013) are quick to point out that since there are well-established empirical links between OCB and commitment, "the finding might be explained by a missing variable not included in the study" (p. 3570). The findings of the present study are used to probe this issue further, as is discussed below in the final section.

There are several important reasons why organizational commitment might predict eco-helping and eco-civic engagement among the public employees in the municipal organization investigated. The organization has taken several steps to signal the importance of environmental performance at the organizational level. First, the city formed an environmental cabinet consisting of leaders from each of the city's departments to facilitate knowledge sharing about actions occurring in each department that promote sustainability and reduce negative environmental impacts. Second, the city council has elevated the environment to a key area of strategic focus. This action places the environment at the same level of council focus as housing and neighborhood development, safety, transportation, and economic development and planning. Last, the council has passed multiple ordinances, including a tree ordinance and a sustainable facilities policy, that further signal the importance of environmental performance to the community as well as to the employees who were the focus of the investigation.

Given the organization's signals emphasizing the importance of the environment and ecological sustainability, it is reasonable to believe that individual employees who are committed to the organization will translate that commitment into eco-helping and eco-civic engagement because such behaviors contribute to the organization's strategic environmental goals. Therefore the following hypotheses are explored:

- H2a: Organizational commitment is positively related to eco-helping in a public workplace that has signaled the importance of environmental sustainability.
- H2b: Organizational commitment is positively related to eco-civic engagement in a public workplace that has signaled the importance of environmental sustainability.

Public service motivation, eco-helping, and eco-civic engagement

Finally, it is necessary to examine the role of public service motivation (PSM) as a possible correlate of eco-helping in public organizations. A subject of enduring interest in public administration research (e.g., Camilleri & Van Der Heijden, 2007; French & Emerson, 2014; Kjeldsen & Jacobsen, 2013; Pandey, Wright, & Moynihan, 2008; Perry, 1996; Perry & Wise, 1990;

Vandenabeele, 2007), PSM has been defined as “the belief, values, and attitudes that go beyond self-interest and organizational interest, that concern the interest of a larger political entity and that motivate individuals to act accordingly whenever appropriate” (Vandenabeele, 2007, p. 547). It captures the desire of individuals to act in a way that goes beyond simple self-interest and seeks to benefit society. Previous studies have found a link between PSM and numerous prosocial behaviors, including volunteering and charitable giving (e.g., Clerkin, Paynter, & Taylor, 2008; Lee, 2012) as well as aspects of employee performance (Jensen & Andersen, 2015; Pedersen, 2015; Vandenabeele, 2009; Van Loon, 2016).

Scholars have also found a relationship between PSM and discretionary, prosocial actions in the workplace. For instance, Kim’s (2006) study of Korean civil servants found a direct relationship between public service motivation and participation and organizational citizenship behaviors. The finding is also supported by Pandey et al. (2008), who observed a direct relationship between PSM and what are defined as interpersonal citizenship behaviors, or helping behaviors directed toward co-workers. Christensen et al. (2013) found evidence suggesting that supervisors high in PSM rewarded OCBs performed by their employees more generously. With respect to OCB-E, researchers found that PSM is positively correlated with public employee participation in eco-initiatives (e.g., recycling and conserving energy at work), another subdimension of OCB-E (Stritch & Christensen, 2016).

PSM is useful in understanding public employee participation in eco-helping and eco-civic engagement behaviors in the workplace. Kollmuss and Agyeman (2002) argue that pro-environmental behaviors have a strong external focus and require individuals to focus beyond themselves and think about the larger interests of the community. Externally oriented, PSM’s prosocial orientation provides a mechanism from which one can begin to understand the factors that motivate employees to engage in eco-helping. The authors of this article believe that individuals who are motivated to serve society’s interest are going to be more likely to participate in eco-helping and eco-civic engagement in the public workplace, because such behaviors are seen as beneficial to the community or society. Therefore the following hypotheses are examined:

- H3a: Public service motivation is positively related to eco-helping in a public workplace that has signaled the importance of environmental sustainability.
- H3b: Public service motivation is positively related to eco-civic engagement in a public workplace that has signaled the importance of environmental sustainability.

Data

The hypotheses presented above are tested using survey data from a large southeastern city in the United States. The electronic survey was designed

and implemented to help city leaders identify the discretionary green behaviors employees were performing, remove barriers to participation, and identify mechanisms to help promote participation in pro-environmental behaviors among employees. The authors were given the opportunity to add several items (organizational commitment, PSM, and environmental connectedness) to the survey pending the city's final approval of all items. The data were collected in March and April of 2010 by the city. The survey was distributed to 3,120 city employees with e-mail addresses in the following departments: finance, engineering and property management, neighborhood and business services, city attorney's office, police department headquarters, planning department, utilities, fire department, solid-waste services, public transit, department of transportation, aviation, business support services, human resources, and the city manager's office. In addition, internal communications representatives were asked to help distribute the survey within their own departments. Two reminders were sent to those receiving the survey. The survey was open to participants for three weeks and yielded 843 responses for a response rate of approximately 27%.¹ The Appendix provides a list of the specific survey items and categories used by the city to collect the data. [Table 1](#) contains descriptive statistics and the correlations between the key variables in the model.

Eco-helping in the workplace

Encouraging co-worker participation in discretionary pro-environmental behaviors is the eco-helping behavior explored in the present study and the dependent variable in all models. The variable is operationalized with responses on a 7-point Likert scale to one survey question that asks respondents: How likely are you to "ask other employees to recycle?"

Eco-civic engagement in the workplace

The variable is operationalized with responses on a 7-point Likert-scale to two survey questions that ask respondents how likely they are "to join a team to encourage environmentally friendly behaviors at work" and "to participate in voluntary training on environmental awareness."

For all three indicators, it was confirmed that neither the organization nor any department had a policy requiring any of these behaviors of their employees at the time the data were collected. Thus, participation for all three of the items would be at an employee's discretion, satisfying the discretionary requirement of OCB-E. The items go beyond asking respondents about their own participation in eco-initiatives or green behaviors, but capture the extent to which the respondents will help their co-workers and engage their organization to help enhance environmental performance. While these are not the

Table 1. Descriptive statistics and correlation matrix ($n = 507$).

	M	SD	Min	Max	1	2	3	4	5	6	7	8	9	10
1 Eco-helping (ask other employees to recycle)	4.27	2.16	1.00	7.00	1.00									
2 Eco-civic engagement 1 (join a team to encourage environmentally friendly behaviors at work)	3.74	2.10	1.00	7.00	0.48***	1.00								
3 Eco-civic engagement 2 (participate in voluntary training on environmental awareness)	3.98	2.15	1.00	7.00	0.42***	0.75***	1.00							
4 Environmental concern	38.44	8.15	9.00	57.00	0.29***	0.42***	0.37***	1.00						
5 Organizational commitment	11.55	2.56	2.00	14.00	0.17***	0.19***	0.17***	0.22***	1.00					
6 Public service motivation	27.18	5.35	5.00	35.00	0.29***	0.29***	0.22***	0.39***	0.52***	1.00				
7 Organizational tenure (5-year categories)	3.71	1.64	2.00	8.00	-0.06	-0.11*	-0.16***	-0.03	0.05	0.11	1.00			
8 Race (1 = non-White)	0.18	0.39	0	1.00	0.03	0.17	0.14**	0.12	-0.09*	0.04	-0.08	1.00		
9 Age (5-year categories)	6.42	2.03	3.00	11.00	-0.01	0.06	0.09*	0.14**	0.08+	0.04	0.46***	-0.01	1.00	
10 Educational level	2.61	1.12	0	4.00	0.05	0.06	0.07+	-0.02	-0.01	-0.05	-0.14**	-0.07	-0.16***	1.00

Note: + $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.005$.

items used to measure the latent eco-helping and eco-civic engagement constructs proposed by Boiral and Paillé (2012), conceptually they measure the same substantive actions and behaviors.²

Environmental concern

The environmental concern measure is a composite score based on 12 questions in Mayer and Frantz's (2004) Connectedness to Nature Scale. This scale was used because it taps attitudes, or "connectedness," toward the environment without asking questions with a simple "right" answer. Simply asking employees if they think the environment is important might have generated socially desirable responses. The original scale has 14 questions, but two were omitted at the city's request because of their political sensitivity. The scale ranges from 12 to 60.

Organizational commitment

Two 7-point Likert responses were used to measure attitudinal organization commitment. The questions come from Mowday et al. (1979) and measure: (a) the degree to which individuals care about the fate of their organization; and (2) the degree to which individuals feel their own values are similar to those of the organization. The combined scale ranges from 2 to 14.

Public service motivation

Public service motivation is measured with a five-item survey scale. The scale provides a unidimensional measure of PSM commonly used by scholars (e.g., Wright, Christensen, & Pandey, 2013). The combined scale ranges from 5 to 35.

In addition to the main variables of interest, previous research suggested the need to include a number of controls in the models.

Race

Dietz, Stern, and Guagnano (1998) found that racial minorities are more likely to participate in pro-environmental behavior outside of the workplace and are more likely to support government spending on environmental protections than Whites in the United States. Thus the race variable was included as a control.

Educational attainment

Past research suggests a positive relationship between educational attainment and pro-environmental behaviors (e.g., Van Liere & Dunlap, 1980). Therefore, dummy variables were added to control for this relationship.³

Age

Previous research has found a negative relationship between age and participation in pro-environmental behaviors (e.g., Van Liere & Dunlap, 1980, 1981), suggesting that it is an important control in the models.

Finally, it was necessary to control for the possibility that participation in OCB-E may be affected by the different contextual forces an employee encounters in the workplace, such as different levels of leadership commitment to environmental performance and sustainability (Boiral & Paillé, 2012; Robertson & Barling, 2013) and differences between the organization's departments with respect to environmental management practices (Paillé et al., 2013). To capture this variation driven by work context, measures for organizational tenure, department, and individual workspace are included.

Organizational tenure

Informal status in an organization, as reflected by tenure, might also have an effect on the likelihood of encouraging pro-environmental participation among co-workers. Organizational tenure is measured in five-year increments.

Workspace

Like tenure, one's workspace might indicate a level of organizational "status" that might affect willingness to conduct eco-helping and eco-civic engagement behaviors. It is controlled for with dummy indicators.

Department

Previous studies have found that leadership or supervisory support is positively associated with employees' willingness to perform pro-environmental behaviors, develop environmental initiatives, and contribute to the greening of the organization (see Daily et al., 2009; Paillé et al., 2013; Ramus & Steger, 2000; Robertson & Barling, 2013). Although it was not possible to directly observe and measure leadership support for pro-environmental behaviors in the data, these dummy variables are included to partial out a department fixed-effect that might explain variation in employee eco-helping and eco-civic engagement. Furthermore, even within a single organization variations in procedures, work projects, and cultures might have informal effects on the likelihood of engaging in eco-helping and eco-civic engagement. While the effects of these specific differences cannot be examined directly, they are controlled for, to the extent possible, by including department dummy variables.

Common methods bias is a concern whenever cross-sectional data are analyzed and has recently received attention in public management research (Jakobsen & Jensen, 2015; Meier & O'Toole, 2013). While it was not possible to obtain data from multiple sources, or to create temporal separation in the measure of the independent and dependent variables, several steps were taken to limit and assess the bias it might pose. By collecting data as a third party, the authors hoped to better ensure protection of anonymity and reduce evaluation apprehension that can lead to methods effects driven by social desirability, leniency, acquiescence and consistency in responses (see Podsakoff, MacKenzie, Lee, & Podsakoff, 2003, p. 883). Second, the questionnaire was so ordered as to place the attitudinal measures (environmental concern, organizational commitment, PSM) before a thematic break in the instrument and prior to questions regarding likely participation in future behaviors. With respect to statistical assessments, an exploratory factor analysis (EFA) of all the latent constructs suggested a three-factor solution. No single factor emerged as driving all of the responses. Admittedly, this does not close the door on any threat, but it provides an ability to see whether this is a major issue within the data—which it does not appear to be.

Results

An ordered probit model was estimated on each of the 7-point Likert response items, clustering the errors at the department level.⁴ Model 1 (eco-helping) in Table 2 estimates the responses to the question “How likely are you to ask other employees to recycle?” The responses are ordered responses on a 7-point Likert scale. In this model, one may see that both environmental concern ($\beta = 0.029$, $p < 0.005$) and PSM ($\beta = 0.052$; $p < 0.005$) are positively and significantly related to respondent agreement to the item (H1a and H3a are supported). Substantive meaning is provided by calculating the marginal effects of a 1-unit increase of each of these measures on the likelihood of a respondent's indicating “very unlikely” and “very likely.” Postestimation calculations reveal that a 1-unit increase in environmental concern will, on average, decrease the probability of an individual claiming to be “very unlikely” to ask others to recycle by 0.68 percentage points ($p < 0.01$), while a 1-unit increase in environmental concern will increase the probability of selecting “very likely” by 0.81 percentage points ($p < 0.005$). A calculation of the marginal effects also reveals that a 1-unit increase in PSM will decrease the probability of selecting “very unlikely” by 1.22 percentage points, but will increase the probability of selecting “very likely” by 1.44 percentage points. Interestingly, organizational commitment is not related to the likelihood of an employee's asking colleagues to recycle (H2a is not supported).

Model 2 (eco-civic engagement) in Table 2 estimates responses to the question “How likely are you to join a team to encourage environmentally friendly

Table 2. Ordered probit estimates.

Ordered dependent variable	Eco-helping			Eco-civic engagement					
	(1)			(2)			(3)		
	β	SE		β	SE		β	SE	
Environmental concern	0.029***	(0.01)		0.049***	(0.01)		0.037***	(0.00)	
Organizational commitment	0.007	(0.02)		0.042**	(0.02)		0.053*	(0.02)	
Public service motivation	0.052***	(0.01)		0.036*	(0.02)		0.038***	(0.01)	
<i>Controls</i>									
Age (compared to less than 30 years old)									
30–34	0.154	(0.32)		0.317*	(0.16)		0.194	(0.16)	
35–39	-0.022	(0.27)		0.350	(0.25)		0.235	(0.17)	
40–44	0.376	(0.24)		0.365*	(0.17)		0.455*	(0.18)	
45–49	0.068	(0.16)		0.036	(0.21)		0.111	(0.21)	
50–54	0.114	(0.18)		0.286	(0.17)		0.057	(0.19)	
55–59	-0.026	(0.18)		0.052	(0.22)		0.300	(0.22)	
60–64	0.285	(0.32)		0.490+	(0.29)		0.238	(0.19)	
65–69	-0.063	(0.58)		0.658*	(0.30)		0.358	(0.42)	
<i>Education (graduate degree excluded)</i>									
Less than high school	-0.341	(0.25)		-0.374+	(0.19)		-0.385*	(0.19)	
High school	-0.198	(0.24)		-0.070	(0.18)		-0.040	(0.21)	
Some college	-0.198	(0.23)		-0.220	(0.20)		-0.275	(0.23)	
Bachelor's degree	-0.144	(0.24)		-0.174	(0.19)		-0.164	(0.21)	
<i>Organizational tenure (less than 5 years excluded)</i>									
6–10 years	0.194	(0.14)		0.201*	(0.08)		0.081	(0.13)	
11–15 years	-0.090	(0.16)		-0.097	(0.19)		-0.086	(0.28)	
16–20 years	-0.249	(0.18)		-0.284	(0.25)		-0.533+	(0.28)	
21–25 years	-0.166	(0.23)		-0.272*	(0.13)		-0.301	(0.26)	
26–30 years	-0.218	(0.25)		-0.020	(0.21)		-0.152	(0.23)	
>30 years	-0.328	(0.40)		-0.540	(0.59)		-0.536	(0.51)	
Non-White	-0.076	(0.14)		0.298*	(0.13)		0.170*	(0.08)	

	Workspace fixed effects	Department fixed effects	Included	Included	Included	Included
	cut1	cut2	cut3	cut4	cut5	cut6
Constant	1.687***	1.972***	2.314***	2.739***	3.115***	3.560***
cut1						
cut2						
cut3						
cut4						
cut5						
cut6						
Constant	2.432***	2.927***	3.268***	3.840***	4.311***	4.653***
Observations	507	507	507	507	507	507
Pseudo R^2	0.058	0.103	0.103	0.103	0.109	0.109

Notes: + $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.005$. Estimated with robust SEs clustered at the department-level.

behaviors at work?” Environmental concern ($\beta = 0.049$; $p < 0.005$), organizational commitment ($\beta = 0.042$; $p < 0.01$), and PSM ($\beta = 0.036$; $p < 0.05$) are positively related to the likelihood an individual will join a team to encourage environmentally friendly behaviors at work (H1b, H2b, and H3b are supported). Calculating the marginal effects helps provide some substantive interpretation of these coefficients. A 1-unit increase in environmental concern decreases the probability of selecting “very unlikely” by 1.21 percentage points ($p < 0.000$), but increases the probability of selecting “very likely” by 0.89 percentage points ($p < 0.000$). A 1-unit increase in organizational commitment decreases the probability of selecting “very unlikely” by 1.05 percentage points ($p < 0.005$), but increases the probability of selecting “very likely” by 0.78 percentage points ($p < 0.005$). A 1-unit increase in PSM decreases the probability of selecting “very unlikely” by 0.90 percentage points ($p < 0.05$), but increases the probability of selecting “very likely” by 0.67 percentage points ($p < 0.05$).

Model 3 (eco-civic engagement) in Table 2 estimates responses to the question “How likely are you to participate in voluntary training on environmental awareness?” As can be seen, environmental concern ($\beta = 0.037$; $p < 0.005$), organizational commitment ($\beta = 0.053$; $p < 0.05$), and PSM ($\beta = 0.038$; $p < 0.005$) are positively related to agreeing to this item. The findings support H1b, H2b, and H3b. A 1-unit increase in environmental concern decreases the probability of selecting “very unlikely” by 0.91 percentage points ($p < 0.005$), but increases the probability of selecting “very likely” by 0.78 percentage points ($p < 0.005$). A 1-unit increase in organizational commitment decreases the probability of selecting “very unlikely” by 1.27 percentage points ($p < 0.05$), but increases the probability of selecting “very likely” by 1.08 percentage points ($p < 0.005$). A 1-unit increase in PSM decreases the probability of selecting “very unlikely” by 0.93 percentage points ($p < 0.005$), but increases the probability of selecting “very likely” by 0.79 percentage points ($p < 0.01$).

Discussion and conclusion

This exploratory study is the first, as far as can be determined, to identify the correlates of employee eco-helping and eco-civic engagement in a public workplace that has signaled the importance of environmental sustainability. It focuses on two aspects of organizational citizenship behavior directed toward the environment (OCB-E): eco-helping and eco-civic engagement.⁵ In light of the increasing focus that many public organizations are giving to environmental performance and sustainability (Opp & Saunders, 2013; Wang et al., 2014), the present exploration will help researchers and practitioners better understand the factors that contribute to the success of such initiatives.

In terms of asking colleagues to recycle (eco-helping), environmental concern and PSM were significantly important motivators, but organizational commitment showed no relationship to employee responses. With respect to both the likelihood of joining a team that encourages pro-environmental behaviors and participating in voluntary environmental training (eco-civic engagement), environmental concern, organizational commitment, and PSM each had a positive and statistically significant relationship to employee participation. One possible explanation for why organizational commitment is significant for the latter two items is that these behaviors are more organizationally centered and focused. Unlike the latter two items, which require team efforts and mutual support, the first indicator (asking others to recycle) could be done by one single employee in the office who holds a pro-environmental view. Therefore, psychological attachment or commitment to the organization might not be a key motive for this behavior.

While the present article provides important insights into eco-helping and eco-civic engagement in the public workplace, it has important limitations. First, the study it reports was based on cross-sectional data that rely on public employees' responses collected at a single point in time. Cross-sectional data of this type cannot demonstrate causality over time (Barbbie, 2013). Future research should seek to create temporal separation among the measures and make repeated observations at different points in time to make a true causal inference. Another strategy to overcome this limitation might be to include the use of experimental designs in future research. Second, utilizing a cross-sectional approach that uses the same instrument to measure independent and dependent variables from the same source introduces the threat of common methods bias (Jakobsen & Jensen, 2015; Podsakoff et al., 2003). Future researchers might consider collecting observational data of employee eco-helping and eco-civic engagement, or matching co-worker observations or evaluations of an employee's behaviors with researchers, and pair that with independent variables measured separately. While causal relationships can never be identified with cross-sectional data, theory suggests that psychologically based motivational/connectedness constructs typically precede behavioral constructs such as eco-helping and eco-civic engagement.

Second, the analysis is limited to secondary indicators of eco-civic engagement and eco-helping. As mentioned above in the discussion of the data, the authors were allowed to include some items, but the pro-environmental behaviors inventoried in the instrument were of particular interest to the municipal organization under study. This fact limited the authors' ability to use previously validated measurement instruments for eco-helping and eco-civic engagement.

Third, while many municipal governments have taken steps that signal the importance of sustainability through policy adoption and have elevated it to an area of strategic focus, others have not, and there is a range of

organizations in-between. This raises the question of what drives OCB-E in these other contexts, thereby showing the need for future research that examines individual-level eco-helping and eco-civic engagement within and between other municipal, state, and federal agencies. In future research, scholars might also implement designs that allow for the examination of how variations in department-level policies and leadership affect individual-level OCB-E.

Despite these limitations, the present exploratory study is a step in building an understanding of OCB-E in public organizations. The findings offer several contributions both to the public management literature and to an understanding of pro-environmental practices in public organizations.

First, the study fills a theoretical gap in current public management literature by exploring the correlates of individual employees' eco-helping and eco-civic engagement behaviors in the public workplace. As noted in previous sections, current scholarship examining pro-environmental activities in public organizations focuses mainly on organization-level policies and programs (e.g., Durant, Fitzgerald, & Thomas, 1983; Paehlke, 1991), and seldom addresses the discretionary, micro-level pro-environmental actions of individual public employees (for exceptions, see Azhar, 2012; Stritch & Christensen, 2016). This study uses survey data to explore the motivational basis of public employees' eco-helping and eco-civic engagement, increasing the understanding of public sector pro-environmental behaviors at the individual level. Moreover, the study goes beyond the discussion of personal willingness to conduct pro-environmental behaviors, but further tries to understand how employees will encourage co-workers to perform pro-environmental behaviors and promote them throughout the organization. Understanding eco-helping and eco-civic engagement is crucial in promoting green public organizations, as in aggregate they can enhance an organization's environmental performance (Daily et al., 2009).

Second, as mentioned above in connection with the development of the hypotheses, previous research offers mixed results with respect to the relationship of organizational commitment to a unidimensional measure of OCB-E (Paillé & Boiral, 2013; Paillé et al., 2013). The findings may provide a deeper understanding of these mixed results. Organizational commitment was observed to be positively and significantly related to measures reflecting eco-civic engagement, but not to the measure reflecting eco-helping. One reason could be that participation in eco-civic engagement, while discretionary, still occurs through formalized organizational channels. Thus, those with higher levels of organizational commitment might be more likely to participate in organization-focused activities, since participation might be an expression of organizational loyalty. On the other hand, eco-helping that occurs between employees might be driven by individual environmental concerns and pro-social motives—but may not be dependent on commitment to

the organization. This could be important as scholars consider the relationship of organizational commitment to OCB-E.

Third, addressing PSM is especially meaningful in the context of public agencies. Building on previous work linking PSM to OCB among employees in public sector organizations (see Kim, 2006; Pandey et al., 2008), the findings provide further usefulness for the PSM construct by linking its presence to individuals' eco-helping and eco-civic engagement behaviors. Public management scholarship has begun to regard PSM as an organizational resource that can be cultivated through recruitment and selection (e.g., Leisink & Steijn, 2008), organizational context (e.g., Moynihan & Pandey, 2007), and leadership (e.g., Paarlberg & Lavigna, 2010). Furthermore, recent experimental evidence has found that PSM is a resource that can be activated through leadership to enhance performance (Bellé, 2014; Pedersen, 2015). Treating PSM as an organizational resource and understanding that it can drive eco-helping and eco-civic engagement, thus promoting environmental performance, is an important lesson for public managers. This finding suggests that PSM plays an important role in driving employee actions that support the normative notion that public organizations should act as stewards of all public resources—including those that are environmental.

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Notes

1. A response rate of 27% is within the acceptable range found in published survey research relying on web-based surveys (Cook, Heath, & Thompson, 2000; Kaplowitz, Hadlock, & Levine, 2004), but nonetheless, the data were probed for possible response biases. To examine response bias, the available demographics for the respondents were compared. Respondents to the survey were nearly 80% White, as compared to approximately 68% of all employees, demonstrating that White employees were more likely to respond. With respect to department coverage, the response rates were compared by department, and most were found to be within 3–5% of the proportion of actual city employees. The major outlier was the police, who were underrepresented as a function of overall employees, but this was expected, because uniformed officers were excluded from participation.

2. Boiral and Paillé (2012) conducted a confirmatory factor analysis (CFA) and validated the following items as measures of eco-helping: (a) I spontaneously give my time to help my colleagues take the environment into everything they do at work; (b) I encourage my colleagues to adopt more environmentally conscious behavior; and (c) I encourage my colleagues to express their ideas and opinions on environmental issues. The following items were validated indicators of eco-civic engagement: (a) I actively participate in environmental events sponsored by my organization; (b) I stay informed of my company's environmental initiatives; (c) I undertake environmental actions that contribute positively to the image of my organization; and (5) I volunteer for projects, endeavors, or events that address environmental issues in my organization.
3. Dummy variables were used to operationalize educational attainment, age, and organizational tenure, because when the data were collected, the instrument asked respondents to mark an ordinal group/category for education, age, and tenure. The city did not collect data on a granular/continuous level (e.g., age or tenure) out of concern that individual employees would be identified if they were in a small department. Collecting data in the form of aggregated groups was a decision to help ensure anonymity of participants. In other words, the data were collected in categories, and there was no *post hoc* aggregation.
4. Two steps were taken to ensure that the results were, in fact, robust to a violation of the parallel regression assumption. First, multinomial probit models were estimated, and it was found that the nature of the relationships between the main independent variables and the dependent variable of interest remained consistent across categories. However, the interpretation of the coefficients for each group is relative to an omitted base group. Since the Likert-scale response for each item is 7 points, it creates an unnecessarily complex interpretation of the output. Second, an ordinary least squares (OLS) regression was run, and both the direction and the statistical significance of the relationships remained consistent—demonstrating a degree of linearity across the seven categories.
5. As noted earlier, other research (e.g., Stritch and Christensen, 2016) explores the third aspect of OCB-E, eco-initiative.

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Appendix

Survey items and measures

Variable	Measurement
Dependent variable	
Eco-helping in workplace (<i>very unlikely</i> = 1, <i>very likely</i> = 7)	How likely are you to ask other employees to recycle?
Eco-civic engagement in workplace (<i>very unlikely</i> = 1, <i>very likely</i> = 7)	... join a team to encourage environmentally friendly behaviors at work? ... participate in voluntary training on environmental awareness?
Independent variable	
Public service motivation ($\alpha = 0.81$) (<i>strongly disagree</i> = 1, <i>strongly agree</i> = 7)	To what extent do you disagree or agree with the following statements? Making a difference in society means more to me than personal achievements. I am often reminded by daily events about how dependent we are on one another. I am prepared to make enormous sacrifices for the good of society. Meaningful public service is very important to me. I am not afraid to go to bat for the rights of others even if it means I will be ridiculed.
Environmental concern ($\alpha = 0.86$) (<i>strongly disagree</i> = 1, <i>strongly agree</i> = 5)	To what extent do you disagree or agree with the following statements? I often feel a sense of oneness with the natural world around me. I think of the natural world as a community to which I belong. I recognize and appreciate the intelligence of other living organisms. I often feel disconnected from nature (reverse). When I think of my life, I imagine myself as part of a larger process of living. I feel as though I belong to the earth as equally as it belongs to me. I have a deep understanding of how my actions affect the natural world. I often feel a part of the web of life. I feel that all inhabitants of earth share a common life-force. ... I consider myself to be a top member of a hierarchy that exists in nature (reverse). ... I often feel like I am only a small part of the natural world around me. My personal welfare is independent of the welfare of the natural world (reverse).
Organizational commitment ($\alpha = 0.67$) (<i>strongly disagree</i> = 1, <i>strongly agree</i> = 7)	To what extent do you disagree or agree with the following? I really care about the fate of [name of employee's organization]. I find that my values and the values of [name of employee's organization] are very similar.
Control variable	
Race	Dummy variable (non-White = 1, White = 0)
Educational attainment	Dummy variables (less than high school, high school, some college, bachelor's degree, graduate or professional degree).

(Continued)

Variable	Measurement
Age	Dummy variables (<30, 30–34, 35–39, 40–44, 45–49, 50–54, 55–59, 60–64, > 65); The <30 dummy variable is dropped from the model and used as comparison group to interpret coefficients produced by other age categories.
Organizational tenure	Dummy variables (≤ 5 , 6–10, 11–15, 16–20, 21–25, 26–30, 31–35 years, and >35 years); Dummy variable for those with 5 or fewer years of experience is dropped from analysis and serves as comparison group.
Workspace	Dummy variables for respondents' reported workspace (e.g., private office, shared office, reception desk, cubicle, field).
Department	Dummy variables for department where individual works.