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Prosocial Behavior and Public Service Motivation

Abstract: *Although research on public service motivation (PSM) is vast, there is little evidence regarding the effects of PSM on observable behavior. This article contributes to the understanding of the behavioral implications of PSM by investigating whether PSM is associated with prosocial behavior. Moreover, it addresses whether and how the behavior of other group members influences this relationship. The article uses the experimental setting of the public goods game, run with a sample of 263 students, in combination with survey-based PSM measures. A positive link is found between PSM and prosocial behavior. This relationship is moderated by the behavior of other group members: high-PSM people act even more prosocially when the other members of the group show prosocial behavior as well, but they do not do so if the behavior of other group members is not prosocial.*

Practitioner Points

- Employees with high levels of PSM are more likely to devote more effort to helping their communities and societies if they are grouped with other employees who also behave prosocially.
- Our evidence implies that, at the organizational level, actions could be taken to enhance the opportunity for employees and managers to engage in prosocial behavior.
- Leaders of public service organizations should seek to create an organizational climate in which individuals with high PSM are encouraged to devote all their efforts toward the common good.

A fundamental responsibility of those providing public services, as a defining feature of their job, is to offer their support to society at large (Frederickson and Hart 1985). In doing so, they are often required to think of the common good as being more important than any individual need. According to public service motivation (PSM) theory, certain individuals have a stronger desire to help society than others (Perry 1996; Perry and Wise 1990; Rainey and Steinbauer 1999). In line with this, PSM is argued to be linked to activities that are valued by society, such as volunteering or donating blood or time to others (Clerkin, Paynter, and Taylor 2009; Coursey et al. 2011; Houston 2006).

However, the empirical evidence linking PSM to an individual's behavior is still nascent. As Bozeman and Su (2015) point out, there is a growing need to assess whether and how PSM corresponds to *observable behavior*. In order to better unravel the behavioral implications of PSM and to explore what PSM really entails, this article examines how PSM is related to prosocial behavior in a stylized experimental set-up. We rely on the well-known public goods game (PGG) as the backbone of our experimental protocol, providing behavioral measures of prosocial behavior

in combination with scenario treatments. Specifically, we pseudo-experimentally explore PSM's average effect on prosocial behavior in a PGG and experimentally explore the moderating effect of environmental conditions on the PSM-behavior relationship. The moderator focuses on the respondent's beliefs about the degree to which other people in a group are acting prosocially.

Our benchmark proposition is that PSM will be associated with observable prosocial behavior in an abstract PGG, in the form of contributing to the production of a public good. However, collective action theory suggests that the decision to act prosocially can be affected by the actions of other members of a group (Ostrom 1998, 2000). Recent empirical evidence shows that the appeal to help others is embedded within our perceptions of the latter's attitudes and behaviors (Grant 2007). Therefore, we suggest that the relationship between PSM and prosocial behavior is moderated by the behavior of others. More specifically, we hypothesize that the relationship between PSM and prosocial behavior is stronger when other individuals also display prosocial behavior and that high-PSM people may or may not—depending on the underlying conceptualization

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of PSM—revert to nonprosocial behavior in response to the egoistic behavior of others.

This second issue is critical from the perspective of the ongoing debate as to what precisely PSM entails. On the one hand, if PSM is a deeply rooted trait-like motivation to act for the benefit of the greater good irrespective of the behavior of others, then we may expect that high-PSM people will behave prosocially even if other group members do not. On the other hand, if PSM is more akin to an instrumentally driven attitudinal motivation, then high-PSM people may reciprocate nonprosocial behavior by starting to act nonprosocially as well. We test these hypotheses in a pseudo-experimental laboratory set-up with a sample of 263 Dutch university undergraduates. The experimental leg of our design relates to two versions of the PGG (one unconditional and one conditional, as indicated earlier); the pseudo- or quasi-experimental leg involves the introduction of survey-based measures of participants' PSM (both as a main effect and as a moderator variable).

Our theoretical perspective and empirical evidence offer important insights regarding the behavioral consequences of high and low values of PSM and provide a critical contribution to the debate about what PSM really entails. The current article responds to the call for experimental evidence regarding the behavioral implications of PSM (Bozeman and Su 2015; Wright 2008; Wright and Grant 2010) by assessing the link between PSM and prosocial behavior in a lab-like setting. Furthermore, we address recent concerns related to unraveling the moderator variables that have an impact on the link between PSM and observable behavior (Pandey, Wright, and Moynihan 2008) by revealing how others' behavior influences the relationship between PSM and prosocial behavior. The present article shows how individuals reach a higher level of prosocial behavior when they have high PSM *and* when they act in groups in which others also display prosocial behavior. In contrast, in the face of egoistical others, high PSM people will revert to nonprosocial behavior.

PSM and Prosocial Behavior

Scholars and practitioners alike share a strong interest in deepening our understanding of why public employees appear to act more in favor of the common good than their private sector counterparts. The dominant theoretical perspective to explain what drives public employees to serve society is public service motivation (Perry and Wise 1990). Although the interpretation of PSM is broad, it is commonly defined as an individual's motives for engaging in behavior for the benefit of the public interest (Wise 2000). PSM refers to behavior that is intended to do good for others and to shape the well-being of society (Perry and Hondeghem 2008). Accordingly, PSM has been used to explain the desire to serve the interests of society at large (Perry 1996; Perry and Wise 1990).

However, scholars have argued that PSM is not a characteristic to be found only among public employees (Rainey and Steinbauer 1999). As researchers explored the PSM construct, they acknowledged that it is a behavioral predisposition of any individual, irrespective of whether or where he or she is employed rather than a characteristic specific to the public sector. In line with this observation, recent

studies have attempted to determine the behavioral implications of PSM as a first step toward understanding how individuals might better help their societies and how their leaders can motivate them to do so (see, e.g., Brewer 2003; Brewer and Selden 2000; Clerkin, Paynter, and Taylor 2009; Esteve, Witteloostuijn, and Boyne 2015; Houston 2006; Perry et al. 2008).

In this line of work, Brewer (2003) uses data from the American National Election Study in 1996 to demonstrate that public employees manifest more civic-minded behavior. In an earlier study, Brewer and Selden (1998) examine whistle-blowing among federal employees as an act that is consistent with the public service ethic. Whistle-blowers are high performers associated with high job commitment and job satisfaction, yet they place themselves at risk to further the public interest. As expected, the finding is that whistle-blowers are more likely to possess PSM-related attitudes than individuals who observe but do not report inappropriate acts.

Following this stream of research, Houston (2006) examines whether public servants are more prone to volunteer, make charitable donations, and donate blood. Using data from the 2002 General Social Survey, Houston shows that both public servants and nonprofit employees are more likely to engage in such prosocial behavior than their private sector counterparts. Although he uses the PSM construct to explain these results, PSM is not measured in this study. In a nutshell, his argument is that although PSM could certainly explain these differences in prosocial behavior, no direct empirical evidence has been collected to estimate the effects of PSM on such observable manifestations of prosocial behavior.

Individuals reach a higher level of prosocial behavior when they have high PSM *and* when they act in groups in which others also display prosocial behavior.

There is a growing consensus that links PSM with prosocial behavior. As Houston states, "PSM offers an explanation for the giving spirit" (2006, 71). According to this author, the desire to serve the public interest implied by the PSM concept is closely related to observable behavior oriented to favor society. In fact, quite a few PSM scholars have centered the construct's definition on the notion

of altruism. This is the case for Rainey and Steinbauer, for instance, who define PSM as an "altruistic motivation to serve the interests of a community of people, a state, a nation, or humankind" (1999, 20). From this perspective, we should expect that individuals with high PSM are keen to behave prosocially, notwithstanding the altruistic or egoistic behavior of those in society they seek to serve.

Recent research has started to empirically test the relationship between PSM and observable prosocial behavior. For instance, Coursey et al. (2011) provide interesting findings that shed light on the relationship between PSM and a specific act of prosocial behavior: the choice to volunteer. In their study, individuals with high PSM are more likely to engage in volunteering activities, an effect that seems to be especially strong for individuals volunteering in religious organizations. In a similar vein, Clerkin, Paynter, and Taylor (2009) report results linking PSM and the willingness of undergraduate students to participate in charitable activity. Other studies consider the relationship between PSM and prosocial behavior within organizations. An example in this line of work is Kim (2006), who examines whether PSM explains prosocial

organizational conduct, such as organizational citizenship behavior. Testing this relationship in a large sample of 1,739 public employees from the Republic of Korea, Kim shows how PSM is positively related to altruistic and compliance behavior within organizations.

To summarize, PSM has been defined as an individual's predisposition to act in favor of society or the greater common good. Therefore, this predisposition should be related to observable behaviors of individuals in favor of their communities. This argument is broadly accepted in the PSM literature; although substantial evidence exists that this is consistent with the behavioral effects of PSM, the link has not been tested directly. Therefore, the first hypothesis we test is a straightforward prediction that follows from the PSM literature.

Hypothesis 1: PSM is positively related to prosocial behavior.

However, this unconditional prediction may be too simple. After all, classic theories of collective action describe individuals as rational minds who would not act for the benefit of society unless their actions implied a clear gain from the perspective of their own interests (Olson 1965). This argument is known as the *zero contribution thesis*, according to which individuals by default act individualistically without considering the communities or societies in which they are operating. During the last decades, however, empirical evidence has accumulated revealing that the zero contribution thesis cannot explain the abundance of individual behavior affecting the common good positively (see, e.g., Bowles 1998; Fehr and Schmidt 1999; Selten 1991).

In order to understand why and how individuals condition their behavior toward other members of society, Ostrom (1998, 2000) developed a revised theory of collective action. Her conceptualization challenges the self-interested zero contribution thesis by arguing that most individuals are conditional cooperators, defined as "individuals who are willing to initiate cooperative action when they estimate others will reciprocate and to repeat these actions as long as a sufficient proportion of the others involved reciprocate" (Ostrom 2000, 142). This definition entails two key concepts worth considering. The first is that individuals might not only pursue their self-interest but also may be willing to act for the benefit of their communities or societies. Furthermore, a second concept acknowledges that the prosocial behavior of these individuals might be moderated by the conduct displayed by other members of their community or society.

Indeed, several studies report the contributions of others as one of the major determinants affecting an individual's contribution to a public good (Fehr and Gächter 2002; Sonnemans, Schram, and Offerman 1999). As Grant and Berry assert, the motivation to act prosocially is "an other-focused psychological process" (2011, 77); for most individuals, the likelihood of working in favor of the public good is conditioned by the behavior of their counterparts. Drawing on pure altruistic theories (see, e.g., Clotfelter 1997), Fischbacher, Gächter, and Fehr (2001) reveal that most individuals

in their sample do not act as free riders in the context of a public goods game but instead condition their contributions on those of other group members: an individual's contribution to the public good is positively influenced by the contributions of others.

But why do many, or perhaps even most, individuals condition their collaborative behavior on the conduct exhibited by their peers? Grant provides a plausible argument that "the motivation to make a prosocial difference is an inherently relational phenomenon" (2007, 394). He argues that the relationships that individuals have with others shape their prosocial behavior. This implies that the desire to help society is embedded within our perceptions of that society and in how we perceive that others are behaving within our community. This argument is well grounded in extant research on individual emotions. This literature has shown that when a person benefits from someone else's prosocial action, that individual is more likely to reciprocate by acting for the benefit of society (Carlson, Charlin, and Miller 1998). Grant and Dutton (2012) claim that there are two main reasons for this effect. The first is reciprocity: when an individual benefits from the behavior of someone else, he or she feels encouraged to act in favor of that other individual in return for the experienced benefit (Gouldner 1960). The second explanation is positive affect: when an individual benefits from someone else's action, a more favorable view is developed toward the individual who benefited him or her by acting prosocially.

Accordingly, it can be argued that when we perceive that other members of society show prosocial behaviors, we will be more likely to follow them and display similar behaviors. Following this line of reasoning, we hypothesize that the relationship between PSM and prosocial behavior is stronger when individuals know that other members of a group have contributed to the public good.

Hypothesis 2: The relationship between PSM and prosocial behavior is positively moderated by the prosocial behavior of others.

The final step in our chain of argument relates to the ongoing debate in the literature as to whether PSM is a deeply rooted trait or a value-laden attitude (see, among others, Bozeman and Su 2015; Kim et al. 2013; Wright and Pandey 2008). On the one hand, if PSM is a deeply rooted trait, then high-PSM people are intrinsically motivated to act toward the benefit of the greater good *irrespective* of the behavior of others. That is, even if others act selfishly, an individual with a high-PSM trait will behave prosocially. On the other hand, if PSM is a value-laden attitude, high-PSM individuals will *not* act prosocially when they are confronted with egoistic others. In this case, high-PSM people may even reciprocate the nonprosocial behavior of others by acting selfishly as well. This opposing pair of arguments implies two contrasting hypotheses: one reflecting a trait-based motivation interpretation and an alternative involving its attitude-based counterpart.

Hypothesis 3: PSM positively affects prosocial behavior even when other members of a group do not behave prosocially.

The desire to help society is embedded within our perceptions of that society and in how we perceive that others are behaving within our community.

Hypothesis 3-alt: PSM does not affect, or negatively affects, prosocial behavior when other members of a group do not behave prosocially.

Data and Method

Procedures

We conducted a PGG experiment with a large group of first-year undergraduate students. They were enrolled in a business program at a major university in the Netherlands and followed a compulsory introductory course on organization sciences (see Urbig et al. 2015). At the beginning of the academic year, in September 2012, as part of this course, students were randomly assigned to tutorial groups consisting of approximately 30 students each. About two months prior to the experiment, all students were asked to participate in an online survey to collect information on sociodemographics, personality traits, and culture-related characteristics; we used the LimeSurvey system.¹ A month later, students were asked to participate in a pen-and-paper survey, which included questions related to PSM. Another month after that, the pen-and-paper-based experiment took place during regular tutorial sessions. Depending on the tutorial groups, the experiment was run in Dutch or English (for an examination of the language effect, see Urbig et al. 2015). Participation was voluntary, but only students who had filled in the both the online questionnaire and pen-and-paper survey were eligible for money prizes. While not mentioning the specific content of subsequent surveys and experiments, the whole procedure was announced together with the online survey.

The temporal separation of the online questionnaire, the pen-and-pencil survey, and the public goods experiment and having the incentivized experiment at the end of the chain, as well as the strict enforcement of anonymity, substantially reduced the threat from common method variance (Podsakoff et al. 2003), implying a much-reduced salience of trying to provide seemingly consistent answers. To match the data and to ensure anonymity, we provided an anonymous log-in code for the survey and always—in order to avoid missing data resulting from forgotten log-in codes—asked participants for a unique 12-digit identifier created by the participants from a series of informative items related to their personal circumstances, such as first two letters of their mother's first name or their own birth place.² After excluding unmatched data and participants with missing data, the final sample used throughout the following analyses includes 263 individuals. The average age is 19 years, with 17 as the minimum and 23 as the maximum; 67 percent are female.

Experimental Design

In order to reproduce real-life decisions about whether to contribute to the well-being of a group, we rely on a well-established experimental design: the public goods game (PGG). This particular design has been applied in many studies that examine the drivers, dynamics, and mediators and moderators of cooperative behavior (see, e.g., Hauert et al. 2002; Semmann, Krambeck, and Milinski 2003). The PGG asks participants to decide how to allocate an initial endowment of a fixed sum of euros between two options: (1) contributing to a public good that will benefit all members of the group (with a known multiplier) and (2) keeping the money for their own individual benefit. Essential is that the outcome of the PGG has real monetary consequences for every participant. As Zelmer (2003)

explains, in so doing, the public goods game captures the willingness to contribute to one's community. Arguably, this design offers the opportunity to measure (non)social preferences and behaviors that mimic those that participants would display in real-life decisions (Levitt and List 2007).

In this study, participants played a three-person public goods game. Participants started with a budget of 20 euros, from which they could invest between 0 and 20 euros in a joint project. They could only invest amounts of "full" euros. The noninvested amount remained theirs. The income from the joint project is determined as 60 percent of the whole group's contribution to the project: that is, the sum of all contributions is multiplied by 1.8, and the resulting amount is equally distributed among all group members. Thus, from every contribution to the joint project, all group members benefit irrespective of their individual contribution. Appendix A provides further detail.

Participants made decisions for two versions of the game, as reproduced in Appendix B. In the unconditional contribution setting, all group members made their decisions without knowing what the others contributed; we refer to this as the *unconditional contribution*. In the conditional contribution setting, one randomly selected group member could condition his or her contribution on what the others contributed. The conditioning was implemented by means of letting participants provide their decision for the case of being the one selected to condition the contribution as well as their decision for the case of being among the other two group members. When conditioning their contribution, they indicated this for each possible average contribution of the other two group members (between 0 and 20 euros in steps of 0.5 euro); we refer to this as the *conditional contribution*.

To ensure a good understanding of the experimental setting, following the initial introduction of the public goods game, we asked 13 control questions (see Appendix C). When all participants had finished the control questions, the experimenter publicly discussed the correct answers and responded to open questions from the participants.

The incentive system for the experiment is a within-subjects random incentive system, which is also known as the strategy method (Selten 1967), in combination with a between-subjects random incentive system (March et al. 2014). Following Fischbacher, Gächter, and Fehr (2001), we employed the within-subjects random incentive system in order to elicit participants' contributions for all possible settings—that is, the unconditional contribution setting and the different conditions in the conditional contribution setting. Thus, all participants made their decisions for all scenarios, the order of which was randomized. Having one measurement per subject would have substantially decreased the required sample size—hence our decision to employ a within-subjects random incentive system.

The between-subjects random incentive system was applied to offer payoffs meaningful to students in the context of a limited research budget (March et al. 2014). After the experiment, we randomly selected 12 participants to be paid in real euros and grouped them into four groups of three participants each. We assigned two groups to the unconditional contribution setting and two groups to the

conditional contributions setting. For the latter, one member of each group was randomly selected to be the one to condition his or her investment decisions. Participants' decisions submitted for the corresponding settings and conditions then determined their real monetary payoff. Thus, participants' decisions were not hypothetical, but each and every decision had—with positive probability—real consequences for the participants' monetary payoff. Both within-subjects and between-subjects random incentive systems have been shown to be valid in similar settings (Brandts and Charness 2011; March et al. 2014). Note that our incentive system implies that there is no feedback about outcomes between treatments, and thus such information is provided only after the experiment—that is, when announcing the log-in codes and parts of the 12-digit self-created identifier of those participants who eventually received payoffs in real euros.

Variables

To study the degree of responsiveness to other people's (non)investment in a public good, we primarily look at the conditional contribution to the public good as our dependent variable—that is, what people contributed depending on the other group members' contributions. As a benchmark case, we also examine the unconditional contribution as the dependent variable. This represents a well-established measure of prosocial behavior (see, e.g., Hauert et al. 2002; Semmann, Krambeck, and Milinski 2003), as this requires participants to think about how much to contribute to the common good for the whole group, at the expense of their individual gains.

The explanatory variable, PSM, is measured using the 12 items from Kim (2011). After appropriately reverse-coding, we averaged the responses to the 12 items to calculate the overall PSM score.³ Cronbach's alpha of 0.75 indicates a sufficiently good internal reliability (Hair et al. 2006). The three items measuring the compassion (COM) facet have been argued to be problematic with respect to measurement issues (Vandenabeele 2008), and this facet's reliability has been argued to vary substantially across samples (Coursey et al. 2008). Indeed, in our data, the internal reliability of the COM facet, reflected by a Cronbach's alpha of 0.55, is low (Hair et al. 2006). Given these ambiguities related to the COM facet, as a robustness check, we separate the COM facet (the average score of

the COM items) from the shortened PSM scale (an average of PSM items excluding the COM items; Cronbach's alpha is then 0.76). For regression analyses, we standardize all PSM-related variables; coefficients then reflect the change in contribution when PSM variables change by one standard deviation.

The second important explanatory variable for the conditional contribution setting is the others' average contribution to the public good and, particularly, the interaction with PSM (hypotheses 2, 3, and 3-alt). To simplify the interpretation of coefficients of interacted variables, the level of others' contributions is centered, with -1 reflecting no contribution and +1 indicating maximum contribution. Because of centering, the coefficient of PSM in a regression that includes the interaction effect of PSM and others' contributions can be interpreted as the average effect of PSM at a level of others' average contributions of 10 euros (cf. Cohen et al. 2003). As we also standardized the PSM facet variables, the coefficient of the level of others' contributions reflects the effect for a participant with average levels of PSM.

In line with prior PSM studies, as *person-related control variables*, we include a dummy for female (versus male as the reference group), age, and religion, with dummies for Catholic, Protestant, and Evangelical, Islamic, no religion, and religion not indicated. Following earlier experimental work in business and economics revealing that language can have an effect (Akkermans, Harzing, and Witteloostuijn 2010; Urbig et al. 2015), we include a dummy for the language of the experimental session (English versus the reference group, Dutch) as an *experiment-related control variable*.

Empirical Results

Table 1 reports summary statistics and bivariate correlations of our key variables at the level of the participant. For the conditional contributions, we report the average contribution over all conditions from 0.00 euros to 20.00 euros in steps of 0.50. Figure 1 provides greater detail by plotting the average contribution to the public good for the different settings, as well as that for those scoring high and those scoring low in PSM (the higher and lower third of the sample, respectively). More specifically, figure 1(a) considers the overall PSM measure, figure 1(b) considers PSM without the COM items, and figure 1(c) includes only the COM facet. To test our

Individuals with high levels of PSM will, on average, make higher contributions to the public good, both when they do and when they do not know the behavior of the others.

Table 1 Summary Statistics and Bivariate Correlations

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
1 Male	.32	.47	1											
2 Age	18.75	1.03	-.08	1										
3 Religion, Catholic	.54	.50	.06	-.02	1									
4 Religion, Protestant	.07	.26	.03	.01	-.30***	1								
5 Religion, Islam	.05	.22	-.08	.06	-.25***	-.06	1							
6 Religion, no religion	.33	.47	-.04	-.02	-.76***	-.20**	-.16**	1						
7 Religion, other	.01	.11	.00	.03	-.12+	-.03	-.02	-.08	1					
8 Experiment: English	.46	.50	.10	.00	-.02	.04	.00	.00	-.03	1				
9 PSM	3.04	.68	-.03	.17**	.01	-.08	-.02	.04	.01	.10+	(.75)			
10 PSM-noCOM	2.98	.79	-.10	.19**	-.04	-.03	-.03	.07	.02	.13*	.94***	(.76)		
11 PSM-COM	3.23	.93	.14*	-.01	-.14*	-.14*	.01	-.09	-.03	-.03	.54***	.23***	(.55)	
12 Unconditional contribution	5.17	6.32	.15*	-.09	-.04	-.04	.05	.04	-.09	-.09	.12*	.16*	-.03	1
13 Conditional contribution (avg.)	3.25	4.40	.10+	.02	-.05	-.05	-.01	.09	.00	-.08	.12+	.17**	-.08	.41***

Notes: $N = 263$; where appropriate, Cronbach's alpha is reported in parentheses on the diagonal.

+ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 2 Regression Analyses

	Unconditional Contribution			Conditional Contribution		
	1	2	3	4	5	6
Constant	13.29	16.39	18.83	0.55	2.28	4.23
Male	2.17	2.24	2.74	1.14	1.18	1.58
Age	-0.45	-0.61	-0.73	0.13	0.04	-0.06
Religion, Catholic				—reference group for religion—		
Religion, Protestant	-0.71	-0.39	-1.07	-0.54	-0.37	-0.91
Religion, Islam	1.96	2.12	2.21	0.25	0.34	0.41
Religion, no religion	0.65	0.62	0.24	0.83	0.82	0.51
Religion, other	-5.06	-5.09	-5.69	0.26	0.24	-0.24
Experiment: English	-1.35	-1.57	-1.86	-0.84	-0.96	-1.19
Experiment: Others' contribution ^a				2.93	2.93	2.93
PSM ^b		1.00	(0.38)**		0.56	0.56
PSM ^b x Others' contribution			1.57	(0.40)***	0.58	0.58
PSM-noCOM ^b						1.05
PSM-noCOM ^b * Others' contribution			-0.82	(0.43) ⁺		0.82
PSM-COM ^b						-0.74
PSM-COM ^b * Others' contribution						-0.37
Observations (subjects)	263	263	263	10783	10783	10783
R ² (F)	0.053	0.077	0.110	0.114	0.127	0.157
Delta R ² (F) ^c	—	0.024	0.057	—	0.013	0.043

Notes: Heteroscedasticity-robust standard errors in parentheses, which are for conditional contribution clustered at the subject level.

^aVariable is standardized.

^bVariable is centered.

^cDelta R² always in comparison to model with only control variables.

+p < .10; *p < .05; **p < .01; ***p < .001.

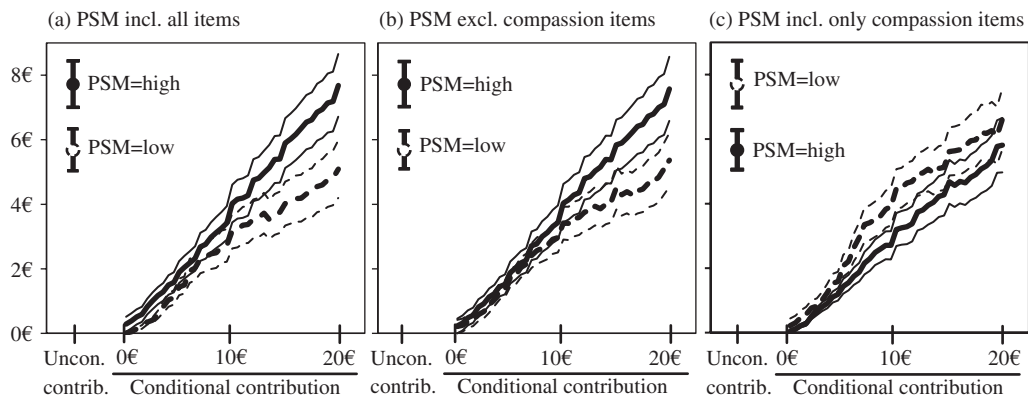
hypotheses, we employ ordinary least squares regression. Bivariate correlations (reported in table 1) and variance inflation factors below 1.65 do not indicate problems of multicollinearity (Cohen et al. 2003). To control for interdependency of multiple observations per individual for the conditional contribution setting, we estimate clustered standard errors. Estimation results are reported in table 2.

In table 2 (columns 2 and 5), we observe that PSM positively affects unconditional and average conditional contributions to the public good. Thus, individuals with high levels of PSM will, on average, make higher contributions to the public good, both when they do and when they do not know the behavior of the others. Note that these results are even more pronounced when we separate the compassion items from the PSM scale (columns 3 and 6). This separation of items demonstrates that there is, on average, a negative effect of compassion on contribution to public goods. Our results for both the overall and the reduced PSM scale without compassion items support our first hypothesis, that PSM is positively related to prosocial behavior.

Our second and third hypotheses focus on the conditional contribution setting and the moderating influence of the prosocial behavior of others. As table 2 (column 5) reveals, the positive effect of PSM on contribution to the public good is stronger for higher contributions of the other group members. Again, the effect is more pronounced when the compassion items are separated from the rest of the PSM scale (see column 6). Figure 2 illustrates the estimated relationships between PSM and contribution to the public good for the different settings. In comparison to figure 1, which reports raw dependencies, figure 2 provides the effects while controlling for all other variables included in the regression analysis. We observe that the effect of PSM, and particularly the reduced PSM scale without the COM items, increases with higher levels of others' contribution. The effect is substantially larger for the reduced PSM scale vis-à-vis the standard PSM measure. Hence, the negative effect of COM seems to attenuate the impact associated with the standard measure of PSM compared with its reduced counterpart. Furthermore, we observe a strong significant effect of PSM when other participants contribute all of their money to the public good ($\beta_{PSM} = 1.13$, S.E. = 0.50, $p = .0$; $\beta_{PSM_noCOM} = 1.87$, S.E. = 0.51, $p < .001$). However, the effect of PSM vanishes if other group members do not contribute anything ($\beta_{PSM} = -0.02$, S.E. = 0.15, $p = .905$; $\beta_{PSM_noCOM} = 0.22$, S.E. = 0.20, $p = .266$). So, in support of hypothesis 3-alt, an individual's PSM does not affect her or his contribution to public goods when others do not contribute.

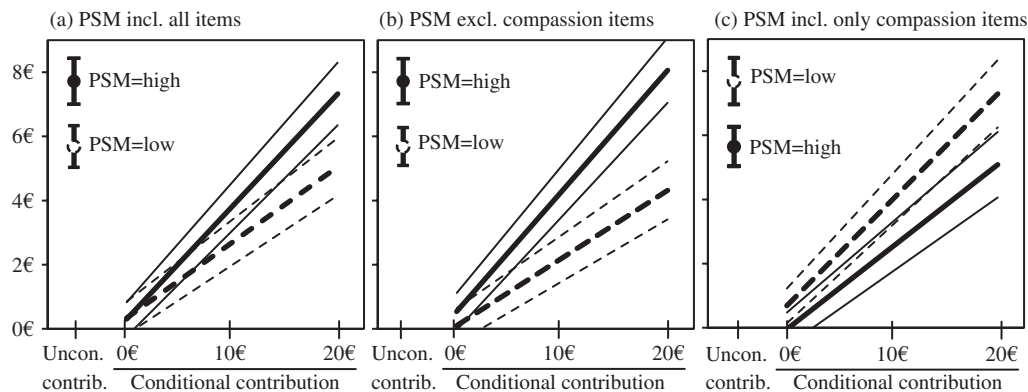
Conclusion

Although the literature on PSM is vast (Ritz, Brewer, and Neumann, forthcoming), little is known as to how PSM affects specific observable individual behavior. As Bozeman and Su (2015) claim, there is a surprising lack of empirical evidence addressing this crucial relation. Although PSM is intended to explain why certain individuals are more prone to act in favor of their communities or societies, little research has offered empirical evidence to back up this claim. We observe a strong relationship between PSM and very concrete behavior in an artificial but incentivized laboratory experiment. Thus, laboratory research reinforces prior evidence of positive correlations between PSM and actual behavior. Observing this relationship in a highly abstract and artificial experimental set-up



Notes: Average contributions for individuals scoring high on PSM variables (upper third, filled circle and solid lines) and for individuals scoring low on PSM variables (lower third, empty circle and dotted lines). Intervals for unconditional contribution and thin lines for conditional contribution indicate mean values plus/minus one standard error.

Figure 1 Comparison of Contributions (Mean and Standard Error) of the Upper and Lower Third in PSM Scores



Notes: Estimated contributions for individuals scoring high on PSM variables (mean plus one standard deviation, filled circle and solid lines) and for individuals scoring low on PSM variables (mean minus one standard deviation, empty circle and dotted lines). Intervals for unconditional contribution and thin lines for conditional contribution indicate 90%-confidence intervals.

Figure 2 Comparison of Contributions (Mean and Confidence Interval) of Those with High and Low PSM Scores

emphasizes the robustness of this relationship. Moreover, moving beyond pure correlational studies, we manipulate what individuals know about others' prosocial behavior.

We clearly observe that the relationship between PSM and contribution to the public good is strongly influenced by others' contributions. These results challenge the extant belief that PSM enhances prosocial behavior regardless of the setting (Pandey, Wright, and Moynihan 2008). We find that the prosocial behavior of high-PSM people depends on whether these people are in a setting in which other people are more or less prosocial. Indeed, our results show that high-PSM people will adjust their behavior to the social context. That is, they act prosocially if they are dealing with prosocial individuals, but they do not act in favor of others if those others do not show prosocial behavior. Additionally, our study sheds new light on the methodological question as to whether combining compassion with the other facets of PSM into a single formative construct is appropriate. Based on the reasons discussed here, we separated the compassion items from the rest of the PSM scale. We reveal opposing effects of the reduced PSM scale without compassion items vis-à-vis the score based on the compassion items. The effect of the full measure of PSM is clearly

attenuated and has less explanatory power than the separate facets. This study adds empirical evidence regarding the need to reassess the role of the compassion facet within PSM (Coursey et al. 2008; Vandenberghe 2008).

Of course, like any other, this study is subject to a number of limitations that point toward avenues for further research. The most crucial limitation of our study is the quasi-experimental aspect of our design, which does not allow us to draw unequivocal conclusions regarding the causal direction of the PSM-behavior relationship (Shadish, Cook, and Campbell 2002). While we can demonstrate a strong connection between PSM and contribution to the public good, we cannot provide clear-cut evidence as to whether this stems from (1) PSM causing a specific behavior (theorized causality), (2) both observed behavior and responses to PSM items being reflections of the same underlying latent construct (codetermination), or (3) participants who tend to behave in specific ways responding to PSM items in specific ways (reverse causality). Hence, we cannot conclusively answer Perry et al.'s (2008) question regarding the causal direction of the relationship between PSM and prosocial behavior. However, as a result of our experimental manipulations, we can clearly conclude something

about the causal nature of the hypothesized moderator—that is, beliefs about others: when interacting with individuals displaying low prosocial behaviors, high-PSM people will *not* contribute more to a public good.

Furthermore, while relatively high internal validity is a clear advantage of the experimental approach, this benefit can be associated with a lack of external validity, often argued to be a major limitation of laboratory-based experimental designs (Levitt and List 2007; Witteloostuijn 2015). Generalizability is also limited by the nature of our study sample, which was composed entirely of university undergraduate students. On the one hand, this focus on a relatively homogenous sample of young students may raise issues regarding the extent to which our findings can be generalized to a broader population. On the other hand, this reduces the influence of noise, as well as threats from endogeneity and sample selection biases, and increases the power of incentive compatibility (Witteloostuijn 2015). Moreover, student samples are appropriate in studies focusing on fundamental human processes (Bello et al. 2009), as is common practice in much of the psychology literature. Indeed, the examination of potential drivers of prosocial behavior is a classic example of such fundamental human processes.

Specifically, in a study such as ours with a focus on the role of PSM, undergraduate students offer the advantage of *not* being associated with too much noise and estimation biases because of real-life experiences resulting from endogenous selection into different occupations (cf. Bönnte, Procher, and Urbig 2015). That is, employees with longer tenures in real organizations bring their experience to the table, on top of and beyond the “pure” effect of PSM. Recent research shows, for example, that age is slightly positively correlated with prosocial behavior in public goods games (Rieger and Mata 2015).⁴ Thus, it could be argued that the relationship between PSM and contribution to public goods might be different for individuals with longer tenures. More importantly, these older individuals’ PSM scores may well be colored by their experiences, which are based on occupational choices that, in turn, are based on their (earlier) PSM scores. With our sample of undergraduate students, we limit this type of “experiential noise” and related endogeneity. Future research, however, could build on our work and examine the extent to which the effects observed in our study can be replicated in settings characterized by highly heterogeneous work experiences. Future research could replicate our lab survey quasi experiment with other samples—for instance, public managers in charge of the administration or the implementation of a public policy.

Finally, the present study has linked PSM with a specific type of individual behavior, contributing to a public good, but future studies could explore whether and to what extent PSM can explain other fundamental public management behaviors. If our findings were replicated in other (nonlaboratory) settings, these results would have important practical implications for those in charge of public services. As this study has shown, those employees with high levels of PSM are more prone to devoting more effort to helping their communities and societies if they are grouped with other employees

Employees with high levels of PSM are more prone to devoting more effort to helping their communities and societies if they are grouped with other employees that also behave prosocially.

that also behave prosocially. Furthermore, at the organizational level, actions could be taken to enhance the opportunity for employees and managers to engage in prosocial behavior. Our evidence implies that this could help create an organizational climate in which individuals with high PSM would be encouraged to devote all of their efforts toward the common good.

Notes

1. See <http://www.limesurvey.org>.
2. By matching the unique 12-digit identifiers, we created a new data set linking all survey information to the experimental data at the level of the individual participant. Only five cases had to be matched manually (because of typos and because a twin had produced identical identifiers).
3. Coursey et al. (2011) strongly suggest calculating scores of PSM (and its facets) based on a second-order reflective confirmatory factor analysis. We implemented such an analysis and estimated the corresponding scores. As this analysis gives equivalent results (available upon request), we report the simpler analyses based on the sum scores.
4. Note, however, that our sample is associated with PSM values very similar to those obtained in other studies developed in other countries and using participants with working experience (see, e.g., Bright 2008; Taylor 2007).

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Appendix A: Experimental Instructions (Basic Information)

For Both Experiments' Parts, a and b

You are a member of a three-person project group. Every member decides about the investment of 20 euros. Either the money is partly or completely put into a separate account OR it is partly or completely invested into a joint project. Every euro that is not invested into the joint project is automatically put into the separate account.

Income from the separate account: Every euro put into the separate account is taken out at the end and will be part of your total income. If you do not invest anything into the project, all is put into the account and at the end you earn 20 euros plus the income from the project. If you only put, for instance, 10 euros into the account, you have 10 euros at the end plus the income from the project.

Income from the project: The amount you invest into the project equally benefits all members of the project group. Similarly, you will also benefit equally from the other group members' investments. Your income from the project is determined as 60 percent of the whole group's investment into the project.

Examples of project investments: If, for instance, together all three group members invest 60 euros—i.e., each member invests 20 euros—then you and the other group members each receive 36 euros. If two group members invests 8 euros and another invests 14 euros, which is 30 euros as a group, then you and the others—independent of who invested 8 or 14 euros—each receive 18 euros (60 percent of 30 euros) from the project. Note that everybody individually decides how much to invest and that the invested amount may differ between group members. The income from the project, however, will always be the same for all group members—i.e., 60 percent of the whole jointly invested pool.

Total income: Your total income is the sum of your incomes from the separate account and the joint project and, thus, the money you

have put into the account plus 60 percent of the sum of all group members' investments into the project.

This setting applies to ALL parts of experiment. The parts, however, differ with respect to the order of decision making. After the experiment, four groups will be randomly selected, with each three participants; two groups will play according to decision rules of part *a* and two groups will play according to decision rules of part *b*.

In **part a**, all group members decide upon their investments **WITHOUT** knowing what the others do.

In **part b**, one randomly selected member of the group gets a special role. While the two other members decide without knowing what the others do, the selected member decides conditional on what the others do. His or her decision will look like the following: "If the others invest *xx* euros, then I will invest . . . euros."

(On the following pages, we ask for your investment decisions for the different parts. Note that the parts do not necessarily show up in the alphabetical *a–b* sequence, as for some people *b* may show up before *a*.)

Appendix B: The Decisions

Instruction for Unconditional Contribution

You are in a project group where all three-group members decide about their investments into the joint project without knowing what the other group members invest.

Please indicate your investment into the project. Note that you can only invest full amounts of euros—that is, 0, 1, 2, until 19 or 20 euros; you are not allowed to invest, e.g., 11.50 euros or 5.33 euros. If you write such values, we will round them to the next euro value; 0.5 will be rounded upwards.

I will invest the following sum: _____ €.

Instruction for Conditional Contribution

You are in a group of three players in total, where there is one player selected to be able to condition his or her investments on the other group members' average investment. Assume that you are the member with this special role.

For each possible average investment of the other two group members, please indicate below your investment into the joint project. Note that you can only invest full amounts of euros—that is, 0, 1, 2, until 19 or 20 euros; you are not allowed to invest, e.g., 11.50 euros or 5.33 euros. If you write such values, we will round them to the next euro value; 0.5 will be rounded upwards.

If I am the group member who can condition her or his decision on the other group members' average contribution, then I will invest the following sum . . .

Others' average investment	Your investment	Others' average investment	Your investment
0.00 €	_____ €	10.00 €	_____ €
:		:	
9.50 €	_____ €	19.50 €	_____ €
		20.00 €	_____ €

Instruction for Those in Conditional Contribution Who Cannot Condition

You are in a group of three players in total, where there is one player selected to be able to condition his or her investments on the other group members' average investment. Assume that you are not the member with this special role.

Please indicate your investment into the joint project. Note that you can only invest full amounts of euros—that is, 0, 1, 2, until 19 or 20 euros; you are not allowed to invest, e.g., 11.50 euros or 5.33 euros. If you write such values, we will round them to the next euro value; 0.5 will be rounded upwards.

If I am one of the two the group members who cannot condition her or his decisions on the other group members' average contribution, knowing that one of the other two group members can condition his or her decision on my investment, then I will invest the following sum: _____ €.

Appendix C: Control Questions

Please answer the following questions. They should help you to get acquainted with how to determine your income in this experiment. Please answer every question and provide the complete calculation.

1. Assume that everybody in the group (including you) does not invest anything into the joint project.
What is your total income? _____
What is the other group members' total income? _____
2. Assume that you invest 20 euros and that the other two group members also invest each 20 euros in the joint project.
What is your total income? _____
What is the other group members' total income? _____
3. Assume that the other two group members each invest 15 euros into the joint project.
 - a) What is your total income if you—in addition to the others' investments—invest nothing into the joint project? _____

- b) What is your total income if you—in addition to the others' investments—invest 8 euros into the joint project? _____
 - c) What is your total income if you—in addition to the others' investments—invest 15 euros into the joint project? _____
4. Assume that you invest 8 euros into the joint project.
 - a) What is your total income if the others—in addition to your investments—together invest 6 euros into the joint project? _____
 - b) What is your total income if the others—in addition to your investments—together invest 12 euros into the joint project? _____
 - c) What is your total income if the others—in addition to your investments—together invest 17 euros into the joint project? _____
 - d) What is your total income if the others—in addition to your investments—together invest 22 euros into the joint project? _____
 5. Please evaluate the following statements and mark the correct option associated with each statement.
 - a) If I increase my investment into the joint project by 1 euro, then my total income . . .
 always increases by 0.60 euro
 always decreases by 0.40 euro
 always decreases by 1.00 euro
 may increase or decreasing depending on what the other two group members do.
 - b) If one of the other group members increases her or his investment into the joint project by 1 euro, then my total income . . .
 always increases by 1.00 euro
 always increases by 0.60 euro
 always decreases by 0.40 euro
 may increase or decreasing depending on what I and the remaining group member do.

Once all have answered the questions, the experimenter will provide the correct answers to each question and is available to further explain the rules.