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Cooperation and Competition in Public-Sector Negotiations: A Laboratory Experiment

Robin Bouwman^a, Sandra van Thiel^b, Ad van Deemen^b, and
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ABSTRACT

Negotiating is a core activity in the public and private sector. Because of varying public service motivation (PSM) between public- and private-sector employees, we expect them to behave differently in negotiations. Moreover, one-shot negotiation settings are often studied even as many real-world negotiations are repeated exchanges. We apply a repeated linear public goods game in a laboratory experiment to test the link between PSM and the level of cooperation by using a sample of graduate and undergraduate students. The results show that high-PSM participants, indeed, contributed more over the entire experiment, and therefore, acted more cooperatively in a repeated negotiation. Matching negotiators to opponents with high-PSM, low-PSM did not alter the level of cooperation in negotiation. Based on this, we conclude that cooperation in repeated negotiations is not conditional on the PSM of opponents. We conclude with implications for theory and practice.

KEYWORDS

laboratory experiment;
negotiation; public- and
private-sector differences

Negotiation is a central activity of employees in both public- and private-sector organizations. In the public sector, employees negotiate over scarce budgetary resources or coordinate policy problems. Negotiation outcomes are often influenced by individual behavior and negotiator motives, such as value orientation and professional norms (Lewicki, Saunders, & Barry, 2015, p. 452), fairness ideals (Reuben & Riedl, 2013), and gender (Van Vugt & Iredale, 2013).

In the public sector, the rise of New Public Management (NPM) has led to an increase in negotiations by public-sector employees, such as those between civil servants and politicians (Hood & Lodge, 2006). Other examples are performance agreements, concessions, and contracts with

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quasiautonomous nongovernmental organizations (QUANGOs) and state-owned enterprises (SOEs), outsourcing, and tendering (e.g., Lawther, 2006). Corporate social responsibility (CSR) practices in the private sector have emphasized contributing to the public good (Holme & Watts, 1999). Thus, both NPM and CSR have made the public and private sector more alike in terms of practices.

While the public and private sectors increasingly converge, empirical evidence demonstrates that public- and private-sector employees are dissimilar in motives (Baarspul & Wilderom, 2011; Esteve, van Witteloostuijn, & Boyne, 2015), risk propensity (Bozeman & Kingsley, 1998; Wildavsky & Dake, 1990), and in trust (Tepe, 2016). One distinguishing characteristic between public- and private-sector employees is captured in public service motivation (PSM) (Perry, 1996; Vandenabeele, 2007). PSM consists of four dimensions: interest in politics, contributing to the common good, self-sacrifice, and compassion that could directly impact the process of negotiations carried out by public-sector employees (Vandenabeele, 2007). Although negotiation context matters, we presume that a compassionate negotiator will act more cooperatively under otherwise equal contexts, equal circumstances, and equal payoffs.

If, indeed, public-sector employees act more cooperatively in a number of settings, public negotiators may get less “mileage” out of public means, as public-sector employees “give more than they take.” In more complex or multidimensional negotiations, public-sector negotiators could be negotiators who are more efficient by arriving at agreement faster and with less friction by focusing on cooperation. Moreover, cooperation could lead to higher joint outcomes that are beneficial for society as a whole. Competitive negotiators, on the other hand, are more likely to use bluffing or unethical tactics, and they are more likely to lie (Robinson, Lewicki, & Donahue, 2000; Ross & Robertson, 2000). On top of that, Steinel and de Dreu (2004) found that cooperative negotiators faced with competitive negotiators over-responded by using even more deceptive tactics. In other words, when public managers represent public organizations, their competitive or cooperative behavior may influence the probability of agreement to a large degree, which, in turn, may have societal consequences.

In a recent study examining three prisoners’ problem games, Esteve et al. (2015) found that individuals with high PSM scores acted cooperatively, even when they knew that this was not in their personal interest. Another study used a quasiexperimental approach, with single-shot interactions (Esteve, Urbig, van Witteloostuijn, & Boyne, 2016). Our study extends the work of Esteve et al. (2015) by focusing on cooperation in a repeated negotiation game. Repeated interactions in negotiation are important as this forces negotiators to act more honestly, more cooperatively, and with more concern

about their future reputation (Raiffa, Richardson, & Metcalfe, 2002, p. 90). Many negotiations in the public and private sector are repetitive. Repeated negotiations are found in service contracting (Ahadzi & Bowles, 2004), in public-sector reform and cutback management (Bouckaert, Peters, & Verhoest, 2010), in international diplomacy, EU policy implementation or enlargement negotiations (Brücker, Schröder, & Weise, 2004), and in public-private partnerships when private companies and municipalities negotiate practical implementation in infrastructural projects (Osborne, 2000).

Negotiation studies in public management research are scarce; the characteristics of public-sector workers are not considered in the negotiation literature. Moreover, although repeated negotiations are common in practice, scholars have focused on single-shot interactions.

In this article, we aim to fill this gap by focusing on negotiation behavior in a repeated negotiation game. We focus on the differences in a priori motives between public- and private-sector employees, by using a sample of graduate and undergraduate students. The main research question of this study is: *Do people with high public service motivation behave more cooperatively than people with low public service motivation in repeated negotiations?*

Our study contributes in two ways to the public management literature. First, we study behavior in a repeated negotiation, which differs from single-shot interactions, which have been studied in relation to cooperative behavior (Esteve et al., 2015). Repeated negotiations are more realistic in terms of expectations for negotiators. The expectation of meeting again alters the strategies of negotiators, especially their trust in opponents (Lewicki et al., 2015).

Secondly, we contribute to the developing field of behavioral public administration by using theoretical insights from social psychology and experimental economics in the realm of public servants (Grimmelikhuijsen, Jilke, Olsen, & Tummers, 2017). In addition, we carry out a laboratory experiment, which reduces the risk of confounding effects while enabling us to study the causal effect of PSM on negotiation behavior and outcomes.

Theory and hypotheses

Below, we discuss negotiation literature, competitive and cooperative behavior, and motives of public-sector employees in order to arrive at the main hypotheses. Next, the experimental design of this study is revealed in the methods section before we discuss the results and discuss the findings.

Negotiations

Negotiation is “the process of back-and-forth communication aimed at reaching agreement with others when some of your interests are shared

and some are opposed” (Ury, 1993, p. 4). All negotiation situations share a number of common characteristics (Lewicki et al., 2015). Negotiation consists of two or more actors. There is a conflict of (perceived) needs and desires between the two or more actors. Actors negotiate by choice. A give-and-take process is expected. Actors prefer to negotiate and privately search for alternatives rather than be subject to public scrutiny.

The process of negotiation has tangible outcomes, such as prices, and intangible outcomes, such as the need to win or avoid loss or the need to obtain or keep a good reputation. Negotiators are interdependent, and the outcomes are influenced by the interdependence of the parties’ goals (Raiffa et al., 2002). Generally, two types of negotiations are distinguished: constant- or zero-sum games or distributive bargaining (where achieving one party’s goals blocks the other one’s goals), and variable- or nonzero-sum games or integrative bargaining (where both parties achieve gains without blocking each other’s goals). Most negotiation settings are somewhere in between the two, which is called mixed scanning, with both claiming a part from a fixed pie and creating value by bringing issues on the table into coexistence in the same negotiation setting or in varying degrees (Lewicki et al., 2015).

In public management literature, negotiation research has focused on power and conflicts (Perry & Levine, 1976), negotiation in networks (Klijn & Koppenjan, 2012), and, for example, in EU negotiations (Tallberg, 2008). Similarly, cooperation literatures in public management focus primarily on organizations, with fewer studies considering the individual negotiator (e.g., Thomson & Perry, 2006).

Cooperation and competition in negotiations

Negotiators may choose to compete over a shared set of resources or to cooperate with their opponents in finding a solution (Lewicki et al., 2015). Cooperation may lead to greater mutual benefit than does competition (Fehr & Gächter, 2000). In reality, more options other than cooperation and defecting may be available to negotiators, such as avoiding and compromising. Arguably, these can be seen as a degree of cooperation or competition (Rahim & Magner, 1995; Shell, 1974). For instance, in prisoner-dilemma games, players choose between cooperation and defecting (Esteve et al., 2015; Raiffa et al., 2002; Schelling, 1980).

In simple negotiation settings, individuals with high self-interest are thought to employ a *competing* style, since this maximizes the individual pay-off at the cost of the pay-off of others. *Cooperation* is used when individuals consider the gains of others as well (Antonioni, 1998). Since individuals often pursue not only rational self-interest, but also other goals,

such as joint outcomes or a fair distribution of resources, it seems that their attitude toward goals will affect the selection of negotiation style (De Dreu & Boles, 1998; Van Lange, 1999).

One-shot and repeated negotiations

In game theory, repeated and one-shot interactions are studied. In one-shot games, negotiators are concerned with short-term payoffs, as there are no potential repercussions (Carmichael, 2005). In repeated games, negotiators consider their own reputation, the shadow of the future, and retaliation opportunities (Raiffa et al., 2002). For example, Selten and Stoecker (1986) found that in a finite repeated game, players started with mutual cooperation, followed by an initial defection, and then mutual defection. In general, more repetitions seem to induce more cooperative behavior and defection later (Kreps, Milgrom, Roberts, & Wilson, 1982), while reputation effects reduce cooperation (Camerer, Loewenstein, & Rabin, 2003, p. 450). In other words, players do not always play the dominant strategy for the period (cf. Aumann, Maschler, & Stearns, 1995).

In games in which players create a public good together, the contributions and cooperation of players usually start high and decline with time (Fehr & Gächter, 2000). The introduction of strong punishments—negative consequences—will also lead players to cooperate. Public-sector negotiations are frequently iterative and repetitive. Individuals have negotiated in the past, and expect to do so in the future. For instance, public-private partnerships require many moments of coordination and negotiation (Edelenbos & Teisman, 2008; Schaeffer & Loveridge, 2002; Skelcher, 2005). Moreover, these types of negotiations are typically cross-sectoral and deal with issues at more than one level, such as those of practical implementation and finances. During these repeated negotiations, individual negotiators may choose to cooperate or to compete.

Public service motivation

One distinguishing element between public-sector employees and private-sector employees is PSM (Perry, 1996). PSM is a set of beliefs, values, and attitudes that “go beyond self-interest and organizational interest, that concern the interest of a larger political entity and which induces through public interaction motivation for targeted action” (Vandenabeele, 2007, p. 547). Earlier work has connected PSM to increased odds of whistle-blowing in the public service (Brewer & Selden, 1998), self-selection into the public service (Delfgaauw & Dur, 2010; Tepe, 2016), and ethical leadership (Wright, Hassan, & Park, 2016).

PSM consists of four dimensions: interest in politics, contributing to the common good, self-sacrifice, and compassion (Perry, 1996; Vandenabeele, 2007). Compared to private-sector employees, public-sector employees are more attached to politics and policy, are interested in working for a public cause, and have higher levels of compassion and self-sacrifice (Brewer & Selden, 1998; Perry, 1996; Vandenabeele, 2007). As public-sector employees have a higher PSM score than private-sector employees, they are typically more interested in politics, more compassionate, and more likely to display self-sacrificial behavior. Moreover, they are motivated to work for a public cause—essentially, creating a public good. These differences between public servants and private-sector professionals are often attributed to self-sorting into either the public or private sector, meaning that people with a set of social norms and motives are attracted to particular organizations that fit their motives (Tepe, 2016). We argue that these characteristics are important in negotiations, as they will affect negotiation behavior. Similarly, these norms and motivations—PSM—will also make public- and private-sector employees behave dissimilar when forced to choose between cooperation and competition, as these appeal to different *a priori* motives. For example, compassion has been linked to the desire to engage in future negotiations and the willingness to achieve joint gains (Allred, Mallozzi, Matsui, & Raia, 1997). The potential to achieve future gains is nonexistent in a one-shot negotiation. In repeated interactions, however, this may lead to more cooperation. Put differently, repeated negotiations may strengthen the effect of PSM on cooperation. Similarly, sacrificial behavior is central to the process of negotiations. When negotiators engage in the “dance of concessions,” they engage in making small sacrifices in order to reach an agreement. Low PSM individuals will feel less need to make sacrifices in order to achieve agreement in single-shot negotiations. At the individual level, this could be beneficial. In repeated interactions, not making sacrifices may lead to repercussions and punishments.

H1: In a repeated negotiation, high-PSM negotiators behave more cooperatively than low-PSM negotiators regardless of their opponent.

If we insist that cooperation is the opposite of competition (Rahim, 2011; Raiffa et al., 2002; Shell, 1974), then private-sector employees will behave more competitively in negotiations. When two public-sector employees negotiate, they will both behave more cooperatively; when two private-sector employees are matched, they will behave less cooperatively. Negotiations between public-sector employees and private-sector employees will lead to behavior varying between cooperation and competition. This leads to two additional hypotheses in which cooperation is conditional on the opponent.

H2: In a repeated negotiation, high-PSM negotiators matched to high-PSM negotiators act more cooperatively than low-PSM negotiators matched to low-PSM negotiators.

H3: In a repeated negotiation, high-PSM negotiators matched to low-PSM negotiators act less cooperatively than high-PSM negotiators matched to high-PSM negotiators, but more cooperatively than low-PSM negotiators matched to low-PSM negotiators.

Method and data

In order to examine the relation between negotiator type (public-sector employee or private-sector employee) and contributions in a negotiation, our subjects were given a low-stakes negotiation task. We tested our hypotheses in a cubicle computer laboratory at a Dutch university in a between-subjects design using z-Tree (version 3.4.2) to administer the experiment (Fischbacher, 2015). A total of eight sessions was administered, which took about 75 minutes each. All communication with participants was done by computer.

We chose a computerized laboratory experiment, as it offers specific advantages over other experimental types (Anderson & Edwards, 2015; Charness & Kuhn, 2011; Morton & Williams, 2010). A laboratory experiment enables researchers to study the interactions between individual negotiators. Moreover, a laboratory experiment offers control and reduces potential confounding effects that are not observed (Morton & Williams, 2010). In addition, a laboratory experiment does not rely on narratives or self-reported measures (Tepe & Prokop, 2017). Finally, by sharing the experimental code, computerized experiments can easily be replicated by using different samples and/or different manipulations.

We recruited graduate and undergraduate public administration and business administration students for participation, as these students are known to differ in PSM (Perry, 1996; Vandenabeele, 2007). These participants registered for participation in experiments via the university subject-pool. The participants could enroll for the experiment through digital invitations (Greiner, 2015). Participants with more than two no-shows were not invited to participate.

Negotiation game

The participants played a *repeated* symmetric linear public goods game in 100 rounds (10 times 10 decisions). A public goods game enables us to study negotiation by tracing the offers and outcomes of individual negotiators. Moreover, it offers the negotiators an opportunity to choose between competition and cooperation (cf. Hauert, De Monte, Hofbauer, & Sigmund, 2002; Semmann, Krambeck, & Milinski, 2003).

For each decision, the negotiators received 10 units. From those units, the negotiators simultaneously decide how much they want to invest into a public good. Once the contributions to the public good are made, they are multiplied by 1.5. The total sum is equally divided over the negotiators. The individual payoff of the negotiators is the remainder not invested from the initial 10 units and their profit from the public good. After this step, the process is repeated. Consequently, the individual payoffs are conditional on the contributions of both negotiators.

A competing negotiator would choose to set the contribution as low as possible. When both negotiators do this, a public good is not produced. Negotiators who cooperate will contribute the maximum number of initial units (10 in our game). This is because this will increase the odds of obtaining a higher group outcome. Thus, contributing more equals cooperation, and contributing less involves a more competitive strategy.¹

The participants were reimbursed for their participation based on individual performance. The exchange rate of experimental units to pay out was €0.008. The participants received a show-up fee of €3, and the mean payment was €14,80, which is slightly above minimum wage. The game was identical for all the participants, regardless of the conditions. The participants are aware that they play with the same opponent over the length of the experiment; the game is repeated; and there is no rematching. The subjects are not aware of the identity of their opponent, as they are in computer cubicles.

Moreover, the players are monolithic in the sense that they do not have to deal with constituencies. The negotiators have full information on the range of potential agreements and payoffs, but are unaware of the actions of their opponent until the outcome is calculated after each contribution is made.

Process

Paper-based instructions were handed out and read aloud by the researcher (see [Figure 1](#)). Then the participants received an on-screen pretest questionnaire containing generic questions (i.e., What is your year of birth? In what type of study program are you enrolled?).

Based on the answers to the study question in the pretest questionnaire, the participants were matched by the computer in such a manner that three experimental conditions could be observed: a high-PSM subject plays

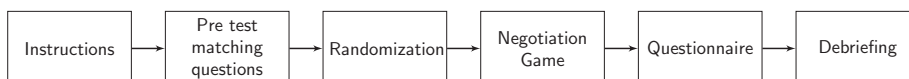


Figure 1. Process during experiment.

Table 1. Allocation of Participants During the Negotiation Game.

Group 1	Group 2	Group 2
High PSM	Low PSM	High PSM
↓	↓	↓
High PSM	Low PSM	Low PSM

against a high-PSM subject; a low-PSM subjects plays against a low-PSM subject; and a high-PSM subject plays against a low-PSM subject (see Table 1). As participants are either public administration or business administration students, the matching in our experiment is stratified. Within the strata, the matching to negotiation opponents is random.

The three experimental conditions will allow us to observe the differences between individuals with high and low PSM (Hypothesis 1) as well as the combinations between formed dyads by focusing on the group level (Hypothesis 2).

Following the experiment, the participants received a post-test questionnaire. Upon finishing the questionnaire, the participants were debriefed and reimbursed based on their in-game performance. The order of events during the experiment is presented in Figure 1.

A pilot session with $n = 12$ participants was administered prior to the experiment. The pilot session has led to the improvement of the positioning of items on screen and text size of the post-test questionnaire.

The statistical power ($1 - \beta$) of this particular study is 0.72 (three groups, $n = 104$, $\alpha = 0.05$, $df = 17$, $f = 0.282$). The tests of the three hypotheses were conducted using Bonferroni correction of $\alpha = 0.016$ per test ($0.05/3$).

Post experimental questionnaire

In the post-test questionnaire, we administered a number of relevant background and demographical characteristics of the subjects. To check the theoretical differences between individuals in the public administration and business administration programs, we measured PSM using the 18-question version of the questionnaire (Vandenabeele, 2008).

As self-efficacy impacts negotiator performance, we measured negotiation beliefs by using the standardized 7-question scale (Elfenbein, Curhan, Eisenkraft, Shirako, & Baccaro, 2008; Kray & Haselhuhn, 2007). The original English version was translated and back-translated by two researchers independently.

In order to measure stated negotiation style, the Rahim Organizational Conflict Inventory II (ROCI-II) was used (Rahim & Magner, 1995). The ROCI-II measure contains 28 questions that generate percentile scores on five theoretically distinct modes of negotiations, including competition and

cooperation. The inclusion of this instrument enables us to see to what extent behavior in our negotiation matches to self-reported styles.

We measured social value orientation by means of a decomposed game in which respondents choose to split a given amount over the “self” and a fictive “other” (Van Lange, 1999). The social value orientation reveals patterns of preferences of a priori outcomes for the “self” and “others.” Based on this, people can be categorized as either pro-self, or pro-social. Pro-social motivation has been linked to PSM (Grant, 2007). We use social value orientation to check whether contributions are conditional, occurring only when others contribute, or unconditional (Frey & Meier, 2004).

Results

Our main expectation is that public administration and business administration students differ in PSM, which, in turn, leads to degrees of cooperation conditional on matching. In our sample, PSM scores differ between public administration students ($M = 3.44$, $SD = 0.33$) and business administration students ($M = 3.25$, $SD = 0.34$) ($t = -2.84$, $p = 0.005$). This implies that public administration students and business administration students differ in motives with regard to interest in politics, working for a public cause, compassion, and self-sacrifice.

The distribution of gender expression, age, negotiation beliefs, and social value orientation did not differ significantly over the experimental conditions (see Table 2). This confirms that we have three experimental conditions with high-PSM dyads, mixed-PSM dyads, and low-PSM dyads, while the other background variables are stable and homogenous over the experimental conditions. This means that any effect of the negotiation dyads must be attributed to the matching based on PSM. Finally, the participants in the “mixed” condition seem to have a lower preference for cooperation based on the ROCI-II questionnaire (Rahim & Magner, 1995). In further analysis, we will add this self-reported variable as a control.

The first hypothesis (H1) is supported by the data. Indeed, over the experiment and across conditions, public administration students contributed more on average ($M = 7.17$, $SD = 3.34$) than did business administration students ($M = 6.95$, $SD = 3.51$) ($t = 3.27$, $p = 0.001$). This is also evident from Figure 2 (right-hand side).

Our second hypothesis (H2) is not supported by the data. We have tested this hypothesis in two ways. First, the contributions did not differ statistically significantly over the conditions for the entire experiment (pooled data) (see Figure 2).

Secondly, we calculated a hierarchical Tobit model in which the negotiation dyads were allowed to differ from each other (see Table 3). In our

experiment, many negotiators contributed the maximum possible amount, which resulted in truncated data. A Tobit model is able to handle this truncated data (Tobin, 1958). Moreover, a hierarchical model corrects for dynamics between subjects that were matched together in dyads (cf.

Table 2. Descriptive Statistics by Experimental Condition.

	High-PSM/ High-PSM	Low-PSM/ Low-PSM	High-PSM/ Low-PSM	Total	Test statistic
<i>n</i>	30 (29%)	40 (38%)	34 (33%)	104 (100%)	Chi-Squared $\chi^2 = 1.46$ $p = 0.481$
Female-presenting	13 (43%)	20 (50%)	13 (38%)	46 (44%)	Chi-Squared $\chi^2 = 1.04$ $p = 0.593$
Age (<i>SD</i>)	20.73 (2.44)	21.18 (1.66)	21.52 (2.69)	21.16 (2.27)	ANOVA $F = 0.978$ $p = 0.338$
PSM (<i>SD</i>) reliability = 0.72	3.54 (0.31)	3.30 (0.33)	3.19 (0.31)	3.33 (0.35)	ANOVA $F = 9.76$ $p = 0.00***$
Negotiation beliefs (<i>SD</i>) reliability = 0.76	2.80 (0.58)	2.69 (0.53)	2.58 (0.60)	2.69 (0.57)	ANOVA $F = 1.18$ $p = 0.309$
ROCI-II cooperation ² reliability = 0.74	4.06 (0.33)	4.09 (0.36)	3.88 (0.40)	4.01 (0.37)	ANOVA $F = 3.40$ $p = 0.037^*$
ROCI-II competition reliability = 0.82	3.2 (0.79)	3.1 (0.77)	3.3 (0.71)	3.91 (0.75)	ANOVA $F = 0.635$ $p = 0.532$
Pro-social	2 (15.4%)	6 (46.15)	5 (38.36%)	13 (100%)	Chi-Squared $\chi^2 = 2$ $p = 0.367$
Pro-self	23 (28.75%)	31 (38.75%)	26 (32.5%)	80 (100%)	Chi-Squared $\chi^2 = 1.22$ $p = 0.542$
Neither pro-social nor pro-self	5 (45.45%)	3 (27.27%)	3 (27.27%)	11 (100%)	Chi-Squared $\chi^2 = 0.727$ $p = 0.695$

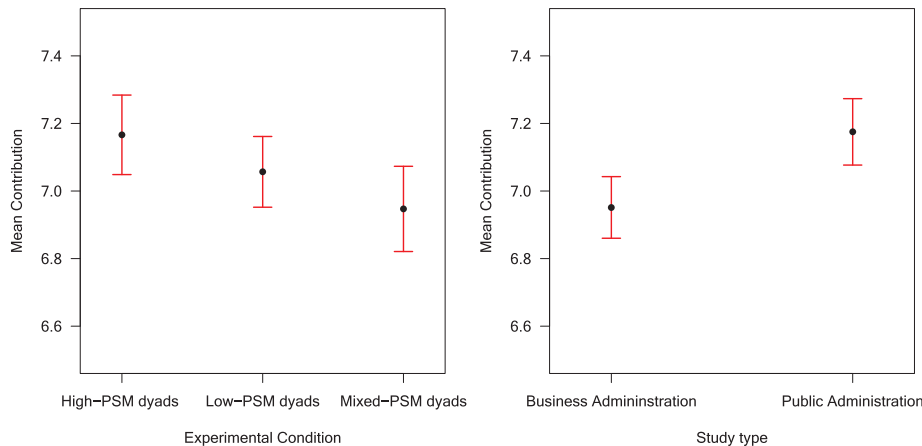


Figure 2. Contributions by experimental condition (left side), and by study type (right side).

Table 3. Hierarchical Tobit Estimates on Contributions During the Experiment (negotiation dyads as random effects.).

	Model 1 Conditions (mixed as reference)	Model 2 Period and gender expression	Model 3 Study type	Model 4 ROCI
Fixed effects				
Intercept	9.373*** (6.84)	8.045*** (5.90)	9.327*** (11.77)	10.624*** (9.54)
Study dummy (1 = PA)			0.784*** (5.56)	
High-PSM/High-PSM dummy	−0.048 (−0.02)	−0.005 (−0.00)		
Low-PSM/Low-PSM dummy	0.857 (0.46)	0.909 (0.49)		
Period		0.180*** (12.56)		
Male dummy		0.595*** (4.82)		
ROCI cooperation				0.049 (0.31)
ROCI competition				−0.355*** (−4.21)
Random effects				
σ^2 Negotiation dyads	5.589*** (9.55)	5.549*** (9.55)	5.622*** (9.54)	5.630*** (9.54)
σ^2 Residuals	3.503*** (98.38)	3.485*** (98.43)	3.494*** (98.39)	3.497 *** (98.38)
Wald χ^2 (df)	0.30 (2)	181.34 (4)	30.95 (1)	19.46 (2)
Log likelihood	−16777.20	−16685.35	−16761.87	−16767.624
Akaike information criterion	33564.406	33384.699	33531.743	33545.495
Bayesian information criterion	33600.654	33435.446	33560.741	33581.491
<i>n</i>	10,400	10,400	10,400	10,400
<i>n</i> -truncated (right)	4,853	4,853	4,853	4,853

Notes: * $p < 0.05$;** $p < 0.01$;*** $p < 0.001$.

Standard errors in parentheses.

Honoré, 1992). From Figure 3, we learn that the slopes differ across the conditions. Finally, a hierarchical model enables us to focus on negotiation decisions made instead of dyad level data or condition level data. The model was built in successive steps. For this, we used the *xttobit* package for random effects in Stata (version 12.1). The experimental conditions were recoded to dummies with the mixed (Low-PSM/High-PSM) category as reference category.

In models I and II (Table 3), the results for the second hypothesis are insignificant. Matching in our experiment does not have an effect on contributions and cooperation during the experiment. A time dummy (period) shows that contributions slowly increase over the experiment, and a gender expression dummy shows that male-presenting negotiators contributed more than did female-presenting negotiators on average. Gender expression also has a positive significant effect on the height of the contributions during the negotiation.

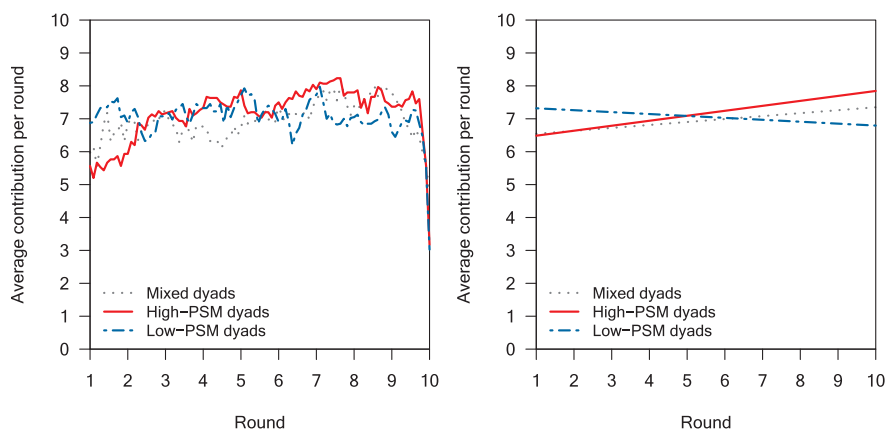


Figure 3. Development of contributions over time during the experiment (left = raw data, right = smoothing applied).

Model III shows that participants enrolled in a public administration program contributed significantly more than participants enrolled in a business administration program, regardless of the experimental conditions (Table 3).

In the fourth model, we found an association between the contributions during the experiment and the self-reported competitive negotiation style. A higher score on competition was significantly associated with lower contributions during the experiment. While there is a statistically significant correlation between cooperation and competition ($r = -0.26$, $n = 104$, $p = 0.007$), there is no statistical association between cooperation and the negotiation contributions in the experiment. In addition, over the length of the experiment (Figure 3), the average contribution develops differently across the experimental conditions. The business administration group exhibits a slightly negative slope, whereas the public administration group shows a positive slope, with all starting between 6.5 and 7.5 for the contributions. The slope of the mixed group lies in between these curves.

The third hypothesis (H3) is not confirmed by the data. There are differences between the conditions, but these are not statistically significant. This is evident if we visually inspect the contributions during the negotiation (Figures 2 and 3). The level of cooperation can also be seen in models I and II, which are corrected for time, gender expression, and matching in dyads. Models I and II also disconfirm this hypothesis.

Discussion and conclusion

The findings of our study have some limitations, although we have tried to alleviate them as much as possible.

First, we have used students as subjects in our experiment. Students provide a homogenous sample, which makes detecting an effect more straightforward (Calder, Phillips, & Tybout, 1982). The main question remains

whether public- and private-sector employees would respond similarly to the treatments in our experiment. Moreover, PSM can be seen as a relatively stable predisposition (Perry & Hondeghem, 2008), or as a learned social norm (Chen, Hsieh, & Chen, 2014; Tepe, 2016). Compared to students, practitioners may exhibit more or less motivation based on experience and workplace socialization. Studies that compare student samples and practitioners remain inconclusive on this particular question (e.g., Liyanarachchi & Milne 2005). While a substantial part of public administration experiments employs student samples (see Li & Van Ryzin, 2017), there is no agreement on this matter. Students have been found to behave more “rationally” than does a generic population (Belot, Duch, & Miller, 2015). This might imply that practitioners would act less cooperatively in a similar negotiation setting. Note that no cooperation is a Nash equilibrium, while cooperation leads to a higher payoff at both individual and group levels. Moreover, practitioners are socialized in their respective sectors, which may induce more collaborative behavior in public managers as a consequence of learned roles and more competition in private-sector managers. This limitation and its implications call for more research, including experimental designs using practitioner samples.

Second, the participants in our experiment were financially incentivized. Compared to the situation in practice, individual negotiators, especially those in the public service are not incentivized, as public budgets are prioritized, and rewards for individual behavior are uncommon (Verhoest, Roness, Verschuere, Rubecksen, & MacCarthaigh, 2010). Similarly, it could be argued from the view of transaction cost theory that in high-stakes negotiations, negotiators will weigh the consequences of cooperative or competitive behavior more diligently (Jap, Robertson, Rindfleisch, & Hamilton, 2013). The latter is especially relevant, as many professional negotiations are, in fact, principal-agent settings. We leave to future research resolving how individual PSM influences behavior in these more complex and realistic settings.

Third, a laboratory experiment provides an artificial situation in which our subjects are asked to negotiate. A laboratory experiment offers control to the researcher while it also reduces the risk of confounding effects. In our experiment, liking or body language presents a potential risk in studying negotiations, which could distort our findings in a face-to-face experiment (Morton & Williams, 2010). As in many experimental designs, experimenter demand effects could have an impact on our findings (Orne, 1962; see Zizzo, 2010). Similarly, it is possible that the lower than ideal power in this study has led to false negatives. Consequently, replication of this study is much needed, preferably with a sample of practitioners.

This study makes a number of contributions to the literature, by bringing together literature on negotiation and individual characteristics of future

public- and private-sector employees. Negotiations at the individual level are seldom studied in public management literature. Our study brings together negotiation literature with PSM. We study behavior in a repeated negotiation, which differs from single-shot interactions that have been studied in relation to cooperative behavior (Esteve et al., 2015). We address the generalizability of studies that focus on cooperation in decision making by extending it to negotiations.

Second, we contribute to the field by using an experimental laboratory design that enables us to study behavior of individuals and dyads of negotiators. Although experimental research designs are common in negotiations research, experimental laboratory designs are still relatively rare in public administration (Bouwman & Grimmelikhuijsen, 2016; Li & Van Ryzin, 2017). Experimental designs fit well when there is a focus on behavior by using microlevel theory with individual decision makers (Grimmelikhuijsen et al., 2017).

We found that overall, high-PSM individuals (public administration students) behave more cooperatively than low-PSM individuals (business administration students). In general, individuals tend to cooperate in repeated public goods experiments (Fischbacher, Gächter, & Fehr, 2001). Although this game is a low-stakes negotiation setting, preferring a cooperative negotiation style is potentially beneficial at the group level, rather than at the individual level. Recent studies have found that individuals are sometimes conditional cooperators whose cooperation heavily depends on the precedent of a collective (Delfgaauw & Dur, 2010). In our study, participants could only see how they performed in dyads and not how others performed. For the public sector, this is especially relevant, as one of the demands placed on public-sector employees is that they ought to behave cooperatively to facilitate problem-solving (McNamara, 2012; O'Leary & Bingham, 2009). Our study shows that high-PSM people also cooperate unconditionally. The latter could be a specific effect of the motivation by high-PSM individuals to contribute to the public good. As negotiations generate public outcomes with real consequences in the public sector, this finding shows that reaching agreement by cooperation seems to be prioritized by high-PSM individuals.

Additionally, in repeated public goods games, the trend of contributions is often found to have a downward slope (Fehr & Gächter, 2000). When players negotiate repeatedly, they tend to punish freeriding behavior, even if it is costly. In our experiment, the slope is slightly upward for the high-PSM dyads, implying that they may have punished freeriding behavior to a lesser degree. This raises the question of whether public managers are less likely to punish competitive behavior in practice, as private-sector managers (high-PSM) do (cf. Steinel & De Dreu, 2004). Moreover, it implies that

low-PSM individuals use more unethical tactics, regardless of their opponents (e.g., Robinson et al., 2000).

In our experiment, the motives of the matched opponents have no significant effect on the contributions in the negotiations. This finding contrasts sharply with the social-psychological literature on this matter. For instance, Greenhalgh, Neslin, and Gilkey (1985) found that personality directly affects negotiator contributions and outcomes. Building on similarity-attraction theory, attitudinally like-minded negotiators are found to experience less conflict and also reach agreement faster (Wilson, DeRue, Matta, Howe, & Conlon, 2016). Note that our participants could only communicate by offer and counteroffer, whereas in the experiment of Greenhalgh et al. (1985) and the experiments of Wilson et al. (2016), negotiators could also see each other.

The differences between the public and private sector have blurred over the past years as the result of NPM developments in the public sector and CSR developments in the private sector (Bullock, Stritch, & Rainey, 2015). This blurring of sectors indicates the need for knowledge on this topic (Antonsen & Jørgensen, 1997). Whether the characteristics and motives of the practitioners in the formerly distinct sectors are also more alike is unclear. Based on our experiment, high-PSM and low-PSM individuals behaved differently and also diverged from the standardized ROCI questionnaire. This finding in a repetitive negotiation setting partly mirrors the findings of Esteve et al. (2015).

These findings are of particular relevance for settings where public- and private-sector workers need to cooperate, as, for instance, in public-private partnerships. Because cooperation levels—and thus, outcomes—differ for the negotiators from the different sectors, this may put public-sector negotiators at a comparative disadvantage in win-lose negotiations. However, in negotiations more complex, the tendency to cooperate may lubricate negotiations. How this works and to what extent this can be understood from the perspective of PSM opens an important avenue for further research.

Our findings have two important implications for public managers and policymakers. First, it suggests that public managers (high-PSM) will collaborate more unconditionally. This is beneficial in variable-sum negotiations, while it may be harmful in constant- or zero-sum negotiations. Second, for public managers, it may prove difficult to reach agreement in repeated variable-sum negotiations with low-PSM negotiators, such as private-sector negotiators or entrepreneurs.

Future research efforts could be aimed at replicating this study by using different samples, such as with practitioners and in different contexts. Moreover, a replication using a different multiplier in the public goods game or testing cooperation with payoffs in the domain of losses (Kahneman & Tversky, 1979) seems a good addition. Similarly, it is unclear under what circumstances individuals behave competitively or cooperatively

when they report to have no strong preference for a particular style of negotiations. Although we did find a relation between contributions and self-reported competition, more research is needed to find under what circumstances self-reported measures align with measured behavior.

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Notes

1. The participants (N) receive an endowment of $y > 0$ units. The participants invest $0 \leq x_i \leq y$ to the public good. The invested amount is multiplied by α_0 and divided over the participants in the group. For individual participants, this yields a payoff function of: $U_i(x_1, \dots, x_N) = y - x_i + \alpha(x_1, \dots, x_N)$ where $\alpha = \frac{\alpha_0}{N}$ (cf. Capraro, 2013)
2. Note that the ROCI-II inventory includes compromising, obliging and avoiding styles also (Rahim & Magner, 1995). No significant differences between business administration- and public administration participants were found on these negotiation styles.

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