

**PUBLIC SERVICE MOTIVATION AND PROSOCIAL RULE-
BREAKING**

**An international vignettes study in Belgium, Germany, and the
Netherlands**

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INTRODUCTION

A widely-studied concept is Public Service Motivation (PSM). A central claim is that high-PSM people tend to behave differently vis-à-vis their low-PSM counterparts. For instance, Esteve, Urbig, van Wittoostuijn, and Boyne (2016) reveal in an unconditional public goods game experiment that high-PSM participants contribute more to a public investment than their low-PSM colleagues. In the current paper, we develop a theory of a potential dark side of PSM. We argue that high-PSM people are more likely to engage in discriminatory prosocial rule-breaking behavior (PRB) than their low-PSM counterparts. High-PSM individuals are assumed to be driven by the intrinsic motivation to help other people (van Witteloostuijn, Esteve, & Boyne, 2017). We argue that high-PSM individuals reveal a higher tendency than their low-PSM counterparts to break the rules in favor of citizens they believe need and deserve help and support.

We report evidence from a multi-site, three-country, between-subject randomized vignette-based quasi-experiment. The quasi-experiment was conducted at universities in Belgium ($n = 220$), Germany ($n = 211$) and the Netherlands ($n = 193$), adding a complementary questionnaire to measure PSM. Our design is a quasi-experiment, because PSM (our central independent variable) is very difficult – if at all – to manipulate experimentally, and thus cannot be designed as a randomized treatment. The three treatments involve vignettes that differ in the information affect cues about the client in the form of either neutral, adverse, or compassionate stimuli. So, this paper presents findings from three studies, replicating a novel quasi-experiment in three

countries, examining the information-conditional impact of PSM on the likelihood to engage in PRB.

This research design comes with a few crucial methodological advantages. First, we employ an experimental design, following pleas of van Witteloostuijn (2015) and Walker, James, and Brewer (2017), to identify treatment-related causal relationships (of affect). Moreover, as argued by van Witteloostuijn (2015), we add a survey-based measure in the context of a quasi-experimental design for the purpose of a correlational analysis of the impact of a key respondent characteristic (i.e., PSM). Second, in line with Landman (2008) and Walker et al. (2017), we conduct a comparative multi-country study to analyze differences and similarities across culture-specific settings. Third, by running the experiment in three countries, this research responds to the recent pleas of van Witteloostuijn (2016), Walker et al. (2017), Walker, Brewer, Lee, Petrovsky, and van Witteloostuijn (2018), and Vandenabeele, Ritz, and Neumann (2018) to conduct replication studies, reflecting on generalizability and boundary conditions.

THEORY

Public Service Motivation and prosocial rule-breaking

The principle of non-discrimination among citizens and clients is a core foundation of the public sector. However, reality in public organizations often looks different. Tummers, Bekkers, Vink, and Musheno (2015) argue that prioritizing clients is a widely-used strategy among street-level bureaucrats to cope with increasing job demands in modern bureaucracies. By “giving certain clients more time, resources, or energy” (Tummers et al., 2015, p. 1108), bureaucrats make use of their *de facto* discretion to deal with the challenges of public service delivery. The consequence is that some clients are prioritized to the disadvantage of others, who will not be given this extra time possibly because bureaucrats might feel more emotionally

detached from these individuals. Facing such trade-offs, Tummers et al. (2015) argue that bureaucrats follow different coping strategies.

On the one hand, they can decide to move *toward* the client. This triggers positive, pro-active, and client-centered behavior, linking neatly with selfless social behavior. This includes rule-bending and rule-breaking to meet the client's demand, as well as discretion in prioritizing. On the other hand, bureaucrats might move *against* the client by "sticking to rules in an inflexible way that may go against the client's demands" in a way that borders on hostility (Tummers et al., 2015, p. 1108). Moving either toward or against the client is associated with risk since both strategies are discriminatory, threatening the fundamental bureaucratic principle of equity (but see Stone, 2011). This paper's central claim is that Public Service Motivation (PSM) plays a key role in co-determining rule-breaking vis-à-vis rule-obeying behavior.

PSM is defined as "an individual's predisposition to respond to motives grounded primarily or uniquely in public institutions and organizations" (Perry & Wise, 1990, p. 368). The central idea of PSM scholarship is that high-PSM people feel attracted to the public sector because employment as a civil servant provides the opportunity to do meaningful work for the sake of (selfless) societal benefit (Perry, Hondegham, & Wise, 2010). Research by Oberfield (2012), and Vogel and Kroll (2016) finds that an individual's PSM is relatively stable over time, making this a very important concept indeed to understand individuals' motivation in working for public sector organizations. PSM research largely argues that high-PSM people are more likely to be attracted to working in the public sector (Kjeldsen & Jacobsen, 2012).

When examining PSM's underlying dimensions, PSM actually incorporates very distinct conceptual ideas. PSM comprises at least four sub-dimensions – compassion (COM), self-sacrifice (SS), commitment to the public interest (CPI), and attraction to policy-making (APM) – two of which directly relate to acting selflessly in the interest of other people (Kim, 2008;

Vandenabeele, 2008). PSM is also positively related with individual and organizational performance (Alonso & Lewis, 2001; Bellé, 2012; Ritz et al., 2016). Yet, Perry and Wise (1990) already noted that high PSM might potentially have negative effects for bureaucratic organizations. Research about these dark sides of PSM is fairly limited, and empirical evidence is even scarcer, despite some explicit calls (Steen & Rutgers, 2011). One of the first to address this issue were Giauque, Anderfuhren-Biget, and Varone (2013), revealing that COM and SS are related to higher satisfaction rates after resigning from public service, while APM and CPI are associated with reduced satisfaction after resignation. PSM is also reported to positively correlate with burnout and job dissatisfaction (Van Loon, Vandenabeele, & Leisink, 2015), absenteeism (Koumenta, 2015), and over-attachment leading to adverse presentism (Andersen & Hjortskov, 2016).

A potential downside of PSM is a higher likelihood of prosocial rule-breaking. Rule-breaking has been discussed in the entrepreneurship literature (Obschonka, Andersson, Silbereisen, & Sverke, 2013; Warren & Smith, 2014; Arend, 2016; Elert & Henrekson, 2017). Rule-breaking can be characterized as 'institutional deviation': individuals deviate from the behavior stipulated by implicit and/or explicit institutional rules (Elert & Henrekson, 2017). The argument is that employees violate such rules in order to serve their own monetary or hedonic self-interest at the expense of others and/or their organizations. This rule-breaking behavior is primarily considered as unethical and self-oriented: the goal is to serve one's self-interest at the expense of public interest (Robinson & Bennett, 1995; Griffin & Lopez, 2005; Hodson, Martin, Lopez, and Roscigno, 2012; Arend, 2016). The literature defines these forms of rule-breaking as pro-self or anti-social (Nogami & Takai, 2008).

Most studies stress the negative consequences of rule-breaking. However, rule-breaking can also function as a remedy if the rules are dysfunctional (Vadera, Pratt, & Mishra, 2013), and rule-breaking can also be prosocial instead of pro-self when the primary intention is to help

others (Morrison, 2006). Little is known about prosocial rule-breaking. A query in the Web of Science gives five hits only: Morrison (2006), Dahling, Chau, Mayer, and Gregory (2010), Parks, Ma, and Gallagher (2010), Vardaman, Gondo, and Allen (2014), and Ambrose, Taylor, and Hess (2015). Morrison (2006, p. 6) pioneers PRB by defining it as “any instance where an employee intentionally violates a formal organizational policy, regulation or prohibition with the primary intention of promoting the welfare of the organization or one of its stakeholders.”

Morrison (2006) identifies three forms of PRB: rule-breaking to (a) facilitate work performance, (b) help another member of the organization, and (c) provide good customer service. Her vignette study shows that participants are more likely to engage in PRB if the job is characterized by high autonomy and if other employees have engaged in PRB in the past. Furthermore, (self-reported) risk-taking propensity is positively related with the likelihood of PRB. Dahling et al. (2010) develop and validate a general scale to capture the likelihood of PRB. Parks et al. (2010) argue conceptually that work characteristics such as autonomy and risk-propensity impact PRB. Vardaman et al. (2014) suggest that organizational ethical norms play a major role in explaining PRB: a climate of instrumental and law-incongruent standards is likely to increase PRB. Ambrose et al. (2015) further conceptualize PRB antecedents, viewing PRB as a deontic reaction to the organizations’ unfair policies toward customers. They propose that the PRB likelihood increases with organic workgroup structures, low workgroup service motivation, and substantial supervisor support for PRB.

In modern public bureaucracies, examples of PRB are shortcutting lengthy bureaucratic procedures to the benefit of a client, with no direct and functional benefit for the civil servant taking the shortcut (Morrison, 2006; Dahling et al., 2010). Seemingly benevolent, PRB can be a fundamental problem for public bureaucracies as the core equity principle is violated, and because the hierarchical logic of top-down rules in combination with policies set by law and formal regulation is undermined (Zhou, 1993). This violation is deliberate, the primary motive

being the intent to help the organization, clients and/or stakeholders in an honorable fashion (Morrison, 2006; Dahling et al., 2010). However, such deliberate PRB actively breaks down the core principles of public bureaucracies (Udy, 1959; Mills, 1970).

How may PSM be related to PRB? We argue that high-PSM people are more likely to break the rules for noble causes, *ceteris paribus*. The discriminatory effect of high PSM is supported by Andersen and Serritzlew (2012), revealing that high-PSM public service providers are more likely to deviate from profit-maximizing strategies in order to help clients they regard as needy. They report that professionalism in the sense of rule-abiding behavior on the job is negatively correlated with user orientation and compassion with the client.

H1: The relationship between PSM and the likelihood of PRB is positive.

However, this main PSM effect might well be associated with directional ambiguity, as the decision to pro-socially break rules to the benefit of a client is likely to be influenced by the client's attributes. In this study, by way of stepping stone, we focus on one attribute that may well be essential: affect toward the client. Before turning to the impact of affect on the effect of PSM, we first theorize about affect's main effect.

Client information cues

PRB is a risky endeavor because there is a real threat that breaking the rules will be noticed and punished higher up in the hierarchy. PRB is associated with uncertainty because the likelihood and magnitude of potential adverse consequences for both the rule-breaker and the organization are unknown and incalculable. If odds cannot be calculated, people (subconsciously) rely on heuristics to cope with the motivational conflict between the wish to help a client and the potential of experiencing adverse consequences from doing so. Heuristics are cognitive rules of thumb activated by internal and external cues, and that help making "good" decisions under uncertainty by reducing complexity (Gigerenzer & Goldstein, 1996).

External cues could be the perception of organizational mistreatment of customers (Ambrose et al., 2015), or specific client characteristics triggering sympathy toward this client, increasing the will to help him or her (Keiser, 2010). Experimental research on decision-making shows that such feelings play an essential role in priming behavior by substantially influencing attitudes and preferences (Kahneman, 2003; Thaler & Sunstein, 2008).

Public servants facing clients with problems are challenged with the daunting task of trying to match rules with the dire needs of clients. Street-level bureaucrats will oftentimes be emotionally affected by their clients' fate. Buurman, Delfgaauw, Dur, and Van den Bossche (2012) found that caseworkers who were weakly altruistic toward clients preferred to not allocate help to needy but unwilling clients, rather than sanctioning them. These findings resonate with Jilke and Tummers (2018), who found teachers to be more willing to help students who worked hard, rather than those who were merely successful according to the bureaucratic success criteria. Affect can be positive in the form of having sympathy for another person, or negative in the form of disliking another person (Eisenberg, 2000), with affect moderating behavior (Fazio, 2001; Oikawa, Aarts, & Oikawa, 2011).

Scott (1997) shows that bureaucrats' use of their discretion is strongly influenced by the attitudes they form on the basis of client characteristics. He argues that client characteristics function as behavioral cues that are much stronger than the individual decision-maker's attitudes or traits, revealing that the level of (monetary) assistance provided to a client of social services is directly related to the level of compassion held by the bureaucrat toward the client. This echoes earlier findings by Goodsell (1980; 1981), who provides evidence that clients who gave cause for compassion because they exhibited greater need receive proportionally greater benefits. An experimental study by Weimann (1982) indicates that bureaucrats can be easily swayed by clients who use 'altruistic' appeals that result in positive affect toward the client.

We assume that positive affect is directly linked with a higher likelihood of PRB. Conducting a series of laboratory experiments, Calvet Christian and Alm (2014) report that people who are very socially motivated by being more than averagely concerned with other peoples' wellbeing, as expressed by these other peoples' emotional state, are more likely to be tax compliant. Gino and Pierce (2009; 2010) show that clerks are more likely to give discounts to customers if they feel sympathy toward these customers.

H2a: The likelihood of PRB increases with positive affect toward a client.

Client discrimination can lead to adverse consequences for clients who are perceived as less likeable or needy (Weimann, 1982; Scott, 1997; Goodsell, 1980; Goodsell 1981). This is especially evident when street-level bureaucrats have to make decisions without face-to-face contact with clients. Keiser (2010) shows that street-level bureaucrats make eligibility decisions in social welfare programs based on abstract (and factually irrelevant) informational cues about the client (whom they have never met) to form heuristic attitudes about perceived deservingness. Using a dataset on a social security disability program from the US, Keiser (2010) reveals that such abstract negative cues cause bureaucrats to arbitrarily make an assumption about the honesty of the client, which decreases the likelihood of generously applying the eligibility rules. Having a negative attitude vis-à-vis the client also decreases the priority given to these client cases.

H2b: The likelihood of PRB decreases with negative affect toward a client.

Public Service Motivation and affect

We are now ready to return, briefly, to the potential PSM – affect moderation effect.

Intuitively, given the nature of PSM, we can expect that PSM will only trigger prosocial rule-breaking in the case of positive affect toward the client. With negative affect, the PSM – PRB relationship might even switch sign, turning from positive to negative.

H3a: The relationship between PSM and the likelihood of PRB is positive if the affect toward the client is positive.

H3b: The relationship between PSM and the likelihood of PRB is negative if the affect toward the client is absent or negative.

In theory, both countervailing forces may cancel each other out in their effect of the PSM-PSB relationship, which would imply that H1 will be associated with a null finding. As this very much depends upon the relative size of the involved effects, for which we lack a theoretical prior, we must let the data speak. Below, we extensively return to this issue when we report, interpret, and discuss our results.

METHODS

Multi-national vignette study

This study was conducted between April and August 2017 with three convenience samples in Belgium, Germany, and the Netherlands. Potential participants were invited through an e-mail distributed among undergraduate (Bachelor) and graduate (Master) students in public and for-profit management degree programs, as well as other social sciences at four large universities. Participation was voluntary and incentivized by the chance of winning one of four substantial gift certificates (1 x €250, 1 x €150, and 2 x €50) from a well-known online retailer. Table 1 presents the socio-demographic characteristics of respondents.

[Insert Table 1 about here]

Survey and vignette stimuli were carefully designed by an international Belgian-Dutch-German research team to make sure that the treatment was equally reliable and logical in the specific context of civil services for all three countries. Scales validated in prior research were

translated with due diligence from English into German and Dutch in a triple-blind procedure. Adequate and rigorous pre-tests were conducted prior to launching the vignettes (Finch, 1987; Wilson & While, 1998). In the prospect of small to medium-sized effects (Cohen's $d \leq 0.3$; power = 0.8; $\alpha = 0.05$), samples per country should at least comprise $n = 176$ respondents (Ellis, 2010). The final datasets only include complete responses since raw data were strictly pre-stratified for missing values and repetitive response patterns.

Quasi-experimental design and vignette treatments

Vignettes are narrative scenarios that invite participants to imagine a specific scenario. Participants are asked to express how they would behave if they were in the said scenario. Vignettes use textual descriptions that are more elaborate than most written stimuli used in other experimental setups to create scenarios that are highly relevant and realistic, increasing the ecological reliability and validity of measured responses (Hughes & Huby, 2004). Vignettes are very powerful instruments in triggering context-dependent behavior with high internal and external validity under highly controlled experimental conditions, allowing for systematic variation of treatments in a very economical manner (Aguines & Bradley, 2014).

Our study comprises four parts (Appendix A.1). First, participants were introduced to the study. Second, we administered a short socio-demographic questionnaire to measure control variables regarding age, gender, nationality, and field of study. Third, we measured our key independent variable (PSM) and respondents' risk preference as a potential covariate using standardized measures developed in prior work: Kim's (2011) PSM scale and Madden, Petry, and Johnson's (2009) Probability Discounting Questionnaire (PDQ). Kim's scale consists of 12 Likert-type statement items, with the standard quadruple of underlying dimensions (COM, SS, APM, and CPI), and answer values from 1 (= 'absolutely disagree') to 7 (= 'absolutely agree'). We create the compound variable PSM by calculating the geometric mean of all 12 items.

Madden et al.'s (2009) PDQ is based on 30 dyadic trade-off tasks between one relatively smaller but fixed pay-out (e.g., €20 for sure) and one higher but risky pay-out (e.g., 67% chance to win €80 and 33% chance to win €0). We use Weißmüller's (2016) algorithm to estimate a risk discounting parameter (h) from respondents' pattern of choice and preference reversals across this set of 30 items. Pay-outs are hypothetical, but Madden et al.'s (2009) measure is very reliable in predicting preferences and real choice under risk (Green & Myerson, 2004), whilst being very robust against conscious manipulation. The parameter is exponential and is centralized by taking its logarithm. Since higher discounting parameter values indicate that respondents devalue risky options more strongly, individuals with $\ln(h) > 0$ are risk-averse.

Fourth, respondents were randomly assigned to two out of three vignette treatments to inhibit order effects, with randomization offering the opportunity for associative inference (Meyer, van Witteloostuijn, & Beugelsijk, 2017). These vignettes are designed to represent a typical scenario for street-level bureaucrats. Respondents are put into the active role of a civil servant handling applications for social housing. In a face-to-face meeting, clients ask to speed up this process by prioritizing their case, which is not in accordance with the organization's prescribed rules. The manipulation is through the (lack of) specific information given about the client's background. The first vignette describes a male client with a very negative criminal track-record, who is reluctant to collaborate ('negative' treatment). The second vignette serves as a control scenario, providing no specific information about the client except that he is male ('neutral' treatment). The third vignette presents a male disabled single-parent in need beyond his own fault ('positive' treatment). In each of the scenarios, respondents are reminded that speeding up individual applications would clearly conflict with the organization's internal codes of conduct. The vignettes make very clear that the civil servant will not benefit personally in any way from prioritizing the client's case. The cases are based on real application procedures in actual institutions of public welfare services in Belgium, Germany,

and the Netherlands. The ecological validity and perceived realism of these treatments was corroborated by both an expert panel, as suggested by Gould (1996), and by pre-testing. Between and within-group *t*-testing indicate that treatment balance was achieved for all three country samples.

PSM is a feature of an individual that we measured through a survey scale. We enter this measure into regressions for what are essentially correlational analyses, as PSM is not randomly attributed in a pure “treatment fashion” across our study participants. Our other central variable is affect, which we could randomly vary across study participants through an experimental vignette design. This implies that we are able to engage with causal inference regarding this second variable. Together, this implies that we have a quasi-experimental design (van Witteloostuijn, 2015), with a non-malleable correlational leg (PSM) and a treatable causal leg (affect).

Prosocial rule-breaking

We developed a three-item scale that serves as a measure of our main dependent variable – prosocial rule-breaking intent (*PRB Intent*). Respondents were asked to indicate how likely they were to break the rules for the client (likelihood), how justified breaking the rules was (justification), and how comfortable they would feel in doing so (affect). All items are Likert-type questions, with score options from 1 (= ‘absolutely disagree’) to 5 (= ‘absolutely agree’). The three items were standardized and sum-scored. We conducted exploratory factor analyses (varimax rotated). Since five-point Likert scales are not continuous, the data were first transformed into a polychoric matrix upon which factor analyses were performed (Appendix A.3), confirming high internal validity and robustness against country effects. Shapiro-Wilk testing shows that *PRB Intent* is normally distributed across all treatment groups (Vignette 1: $W(311) = 0.965, p = 0.000$; Vignette 2: $W(307) = 0.985, p = 0.003$; Vignette 3: $W(310) = 0.989,$

$p = 0.016$). We investigate participants' rationalization strategies on rule-breaking by explicitly asking them to indicate on two five-point Likert scales whether they found that breaking the rules was beneficial for the client (client's benefit) and damaging for the public agency (agency's loss). We added a fourth item (realism) as a reality check, which is a four-point scale asking participants to assess each vignette from being 'very unrealistic' (1) to 'very realistic' (4), as we can expect that a respondent will take the treatment particularly seriously if perceived as realistic.

Model estimation

All participants responded to two vignettes that were randomly assigned and drawn randomly from the set of three different vignettes. Appendix A.4 (available online) provides extensive post-hoc analyses to control for order and spill-over effects, to the extent that our data allow us to do so, showing that procedure-based order and spill-over effects are unlikely to be an important issue. We run linear regression analyses with heteroscedasticity-robust standard errors clustered at the individual respondent. We specify our model as

$$PRB\ Intent = \beta_1 PSM + \beta_{2,3} Treatment + \beta_{4,5} Motiv + \beta_6 Realism + \beta_7 Risk\ Aversion + \beta_8 Age + \beta_9 Female + \beta_{10,11} Country + \varepsilon_i.$$

We use the neutral vignette scenario as reference category. We first analyze each country study individually and then pool the data for a combined sample in which the German sample arbitrarily serves as the reference category (which we therefore take as our Study 1).

Appendix A.2 includes the correlation matrix between all dependent and control variables, as well as respective reliabilities at the five per cent level. Appendix A.5 (available online) provides additional analyses exploring potential interaction effects between *PSM* and treatments (cf. H3a-b). All analyses have been conducted with *PSM*'s underlying dimensions as well (available upon request), which decreased the explanatory power in comparison to *PSM*

as the compound multi-dimensional construct, as originally conceptualized by Perry and Wise (1990). Hence, we decided to follow the many recent examples (e.g., Vandenabeele et al. (2018); van Loon et al. (2015); Schott and Ritz (2017)) that all argue in favor of a unidimensional conception of *PSM*.

FINDINGS

Below, we first discuss our findings for H1 and H2, before we turn to the results for H3. For H1 and H2, we present the results for all three studies separately, as well for the pooled data. Regarding H3, we do not find anything meaningful for each study's sample separately (additional analyses available upon request). Given the countervailing forces argument in combination with the potentially small effect sizes, this may be a power issue, with all three samples being too small to be able to detect any meaningful relationships. Hence, we decided to only report, interpret, and discuss the findings for the pooled data only.

Study 1

The data were collected through a standing online panel of a large German university. We have $n = 211$ respondents who are, on average, 25.8 ($SD = 4.8$) years old. The sample is slightly dominated by female participants (55.0%), consisting of graduate (Master) students of various social sciences, predominantly of public administration (19.7%), business administration (19.2%), and other advanced economic, political and socio-economic studies (47.7%). Respondents have no prior work experience, score high on *PSM* ($M = 5.26$, $SD = 0.98$), and are rather risk averse ($M = 0.65$, $SD = 0.62$).

We find strong discriminatory behavior. Two-tailed t -testing shows that different client descriptions in the vignette treatments create significant variance in *PRB Intent*. Table 2 presents the descriptive analysis of the treatment effects on *PRB Intent*.

[Insert Table 2 about here]

Tested against the neutral treatment (Vignette 2: $M = 2.64$, $SD = 0.87$), respondents are less willing to break the rules when confronted with a less amiable client ($M = 1.79$, $SD = 0.77$; $t = -6.98$, $p = 0.000$), but much more willing to do so for an amiable client ($M = 3.17$, $SD = 0.89$; $t = 4.19$, $p = 0.000$). The direction of this treatment effect is strictly transitive, indicating a causal relation between affect toward client and likelihood of rule-breaking, supporting *H2a* and *H2b*. This effect is subject to a negativity bias since effect sizes (Cohen's d) indicate that the negative treatment ($d = -1.026$) has a stronger effect on inhibiting *PRB Intent* than the positive treatment ($d = 0.611$) has on increasing *PRB Intent* (Figure 1).

[Insert Figure 1 about here]

With linear regression (Table 3), we find a strong and significant linear main effect of treatment on *PRB Intent* (negative treatment: $\beta_2 = -0.224$, $p = 0.020$; positive treatment: $\beta_3 = 0.313$, $p = 0.002$). The model is well specified [$F_1(9, 193) = 26.47$, $p = 0.000$] and explains a large share of variance (adj. $R^2_1 = 0.370$). The main association of *PSM* with *PRB Intent* is negative, but not statistically significant ($\beta_1 = -0.023$, $p = 0.599$), providing no support for *H1*.

[Insert Table 3 about here]

Consideration of the client's interest is not significantly associated with *PRB Intent* ($\beta_4 = -0.037$, $p = 0.384$). Assuming that breaking the rules will result in adverse effects for the public agency increases *PRB Intent* ($\beta_5 = 0.272$, $p = 0.000$). We do not see a significant gender estimate, and only a small but significant age effect ($\beta_8 = 0.023$, $p = 0.039$). Risk aversion is strongly negatively and significantly related with *PRB Intent* ($\beta_7 = -0.224$, $p = 0.032$).

Study 2

Data were collected at a Flemish university in Belgium, including $n = 220$ participants who predominantly study business administration (46.8%), industrial engineering and management (24.1%), and socioeconomics and economic policy (10.0%) on the undergraduate (Bachelor's) level. The sample is slightly dominated by females (51.4%). Respondents are slightly younger ($M = 21.1$ years, $SD = 2.8$) than Study 1's, also have no prior work experience, score highly on *PSM* ($M = 5.53$, $SD = 0.85$) and are predominantly risk-averse ($M = 1.57$, $SD = 0.63$).

Study 2 mostly corresponds with Study 1. We find a linear, transitive and asymmetric treatment effect (positive treatment: $M = 2.83$, $SD = 0.80$; $t = 3.96$, $p = 0.000$, $d = 0.573$; vis-à-vis negative treatment: $M = 1.81$, $SD = 0.67$; $t = -5.55$, $p = 0.000$, $d = -0.804$) compared to the neutral treatment (Table 2 and Figure 1), which strongly supports *H2a* and *H2b*. Linear regression (Table 3) gives a well-specified model [$F_{II}(9, 191) = 32.49$, $p = 0.000$], explaining a substantial share of the variance (adj. $R^2_{II} = 0.400$). We have a positive but non-significant relation between high *PSM* and *PRB Intent* ($\beta_1 = 0.052$, $p = 0.303$), providing no support for *H1*. Consideration of the client's interest does not influence *PRB Intent* ($\beta_4 = -0.089$, $p = 0.066$). Again, being aware that breaking the rules will result in public agency harm significantly increases *PRB Intent* ($\beta_5 = 0.393$, $p = 0.000$). We do not find a significant association of individual risk preferences, age, or gender with *PRB Intent*.

Study 3

Data were collected at two universities in the Netherlands with $n = 193$ respondents who are, on average, 22.5 ($SD = 3.7$) years old, featuring a slight overrepresentation of females (51.8%). Participants are graduate (Master) students of a number of social sciences degree programs with no prior work experience, with the majority in business administration (36.1%) and

economic policy (31.3%). They report, on average, high *PSM* ($M = 5.38$, $SD = 0.92$) and are rather risk averse ($M = 0.96$, $SD = 0.61$).

In line with Study 2, high *PSM* is positively but non-significantly associated with higher *PRB Intent* ($\beta_1 = 0.047$, $p = 0.239$), providing no support for *H1*. Regarding the effect of client-based information cues, the findings mostly correspond with Study 1. We observe linear and transitive, but asymmetric positive ($M = 2.73$, $SD = 0.87$; $t = 2.99$, $p = 0.003$, $d = 0.422$) and negative treatment effects ($M = 1.68$, $SD = 0.65$; $t = -6.93$, $p = 0.000$, $d = -0.966$) compared to the neutral treatment (Table 2 and Figure 1). Linear regression further substantiates this asymmetric treatment effect (Table 3; $F_{III}(9, 198) = 31.48$, $p = 0.000$, $adj. R^2_{III} = 0.443$), with a negative but none significant relation between the negative treatment and *PRB Intent* ($\beta_2 = -0.106$, $p = 0.242$), and a significantly larger and positive relation between the positive treatment and *PRB Intent* ($\beta_3 = 0.285$, $p = 0.000$), providing support for *H2a* and *H2b*. In contrast to Studies 1 and 2, the perception that PRB would benefit the client has a small but only indicative positive association with *PRB Intent* ($\beta_4 = 0.080$, $p = 0.081$), while agency harm is strongly significantly and positively related with *PRB Intent* ($\beta_5 = 0.453$, $p = 0.000$). Female participants reveal significantly lower *PRB Intent* ($\beta_8 = -0.139$, $p = 0.013$), but a significant coefficient for age or risk preferences cannot be observed.

Pooled data

Clustered regression (Table 3) with the pooled data ($n = 1,239$) does not provide further evidence regarding a positive association between *PSM* and *PRB Intent* ($\beta_1 = 0.028$, $p = 0.281$), thus not supporting *H1*. The model is well specified [$F_{IV}(9, 1,239) = 66.67$, $p = 0.000$] and explains a substantial share of the variance ($adj. R^2_{IV} = 0.376$).

[Insert Figure 2 about here]

Treatment with positive information cues has a strong direct positive effect on *PRB Intent* ($\beta_3 = 0.310, p = 0.000$), and negative treatment results in a complementary but asymmetrically larger negative effect on *PRB Intent* ($\beta_2 = -0.129, p = 0.009$), providing further support for *H2*. Public agency harm has a significantly positive association with *PRB Intent* ($\beta_5 = 0.355, p = 0.000$), while acting on behalf of the client's benefit ($\beta_4 = -0.010, p = 0.714$) is not significantly associated with *PRB Intent*. The slight variations between the three country samples cannot be explained by country or culture-specific characteristics, but should be attributed to differences within the samples regarding, for instance, the small variances in age and gender distributions.

Interestingly, we consistently have null findings for *H1*, if we focus on traditional *p*-value thresholds. To explore a potential explanation for this, we conduct a PSM – affect moderation analysis in line with *H3a-b*. We do so for the pooled data, which offers the large power (with a sample size of *Obs.*=1,239) needed to detect small effects, if any. The marginal effects plot reveals a substantive asymmetric moderation effect of treatment on the relation between *PSM* and *PRB Intent* (Figure 2; further explored in Appendix A.5). A first threshold (A) is reached between the negative and neutral vignette. The pairwise correlation matrix (Appendix A.2) reveals a significant correlation between *PSM* and *PRB Intent* ($\rho=.09, p<0.01$). The reaction of the respondents with very low *PSM*-scores hardly differs between the negative and the neutral treatment, with the 95 per cent confidence intervals intersecting. A second threshold (B) is reached for average *PSM*-scores. Up to this threshold, respondents' reaction to the neutral and positive treatment is non-discriminant, as indicated by the intersection of the confidence intervals.

Although suggestive and interesting, one important disclaimer is worth mentioning. The number of observations in the intervals to the left of A and to the right of B are rather limited, with only 1% and 5% of the respondents, respectively. So, although are findings are sign-consistent with *H3a* and *b*, the evidence is tentative, at best. Clearly, further work is required

to explore this potential PSM – affect moderation effect on PRB. Basically, due to PSM range restrictions in our sample(s), with limited number of observations in both tails, we lack the statistical power to reliably identify the full range of moderation. To be able to do so, we would need a sample with more observations at the high and low end of the PSM scale. We return to this issue in the Discussion.

DISCUSSION

Dark horse

Positive cues about the client do, probably due to triggering a feeling of sympathy, increase the likelihood of rule-breaking, which is in line with prior studies by Goodsell (1980; 1981), Weimann (1982), Scott (1997), Gino and Pierce (2009; 2010), and Christian and Alm (2014). In our study, the cross-national consistency and the large effect sizes across the three replications underline the crucial influence of client affect cues on the likelihood of PRB. Negative information cues about the client decrease the likelihood of PRB, resonating with prior research by Goodsell (1980; 1981), Weimann (1982), Scott (1997), Keiser (2010), and Tummers et al. (2015). Negative information cues, which are practically irrelevant for the application of bureaucratic rules, lead the way to strong discrimination of these clients against other clients perceived as more amiable.

This effect is asymmetric: The negative cues have a stronger negative effect than the positive cues have a positive effect. This relates to a psychological effect referred to as the negativity bias: People tend to ascribe stronger valence to negative events than to equally strong positive events. This effect is not uncommon in public administration and management research. Earlier studies by Lau (1985), Rozin and Royzman (2001), and Olsen (2015) showed that dissatisfaction generally has a larger negative impact than satisfaction has a positive effect.

Lau (1985) points out that, under certain circumstances, this perceptual asymmetry can actually be a rational heuristic because negative events are perceived as more threatening, with their overall impact often being rapid and complex to grasp, hence creating higher uncertainty.

Risk aversion is negatively correlated with the likelihood of PRB, but this association is only statistically significant for Study 1's German and the pooled data. This can be explained by country-specific differences between the samples, with Study 1 comprising respondents that are generally more risk-affine vis-à-vis the other two samples with larger variance in risk preferences. Consequently, any statistically significant association of risk aversion with prosocial rule-breaking is hard to detect in these two samples. However, in all three samples, the association of experimentally revealed risk aversion with PRB intent is negative, which turns significant in the pooled data. This sign consistency is an indication that bureaucracies might want to carefully consider whether or not to hire people that score high on PSM *and* are highly risk affine.

Regarding PSM, we find tentative indications for significant moderation between PSM and the positive or negative information client cues. Figure 2 reveals that the marginal effects of the three treatment conditions converges in two thresholds. Individuals with high PSM react more strongly to the client-based information cues and make more discriminatory distinctions between the perceived deservingness of clients. High-PSM people then adapt their behavior accordingly, and are more likely to break the rules in the favor of the clients they perceive to be more deserving. The amplifying association of PSM with PRB is stable across all three replication studies, indicating that the effect is a sign-robust correlation across Germany, Belgium, and the Netherlands. As argued by van Witteloostuijn (2019), this sign consistency is informative, too, as the traditional focus on *p*-values only is misguided in the context of null hypothesis significance testing. The discriminatory effect based on the client's information cues treatment sets in when people pass a certain PSM threshold. People scoring low on PSM

are not just less likely to engage in PRB in general, but the biasing effect of affect toward clients also proves to be less substantial.

However, we only find evidence for moderation in the pooled sample, and only with a very limited number of observations in both PSM tails (i.e., to the left of A and the right of B in Figure 2). This implies that the PSM scores of our 1,239 student respondents cluster, roughly, in the 2-4 interval. We can only speculate why this is the case. Perhaps, this is due to the student nature of our sample; perhaps, this may be specific for the culture of three sample countries Belgium, Germany, and the Netherland; perhaps, this is an inherent psychometric feature of the PSM scale. Or perhaps, there is yet another reason for this. This is an important issue that we, regrettably, cannot explore with our data. Therefore, we would like to suggest that this as a priority in future PSM research: We must seek to collect PSM samples that cover a much wider range of the PSM scale with a sufficient number of observations at the high and low end to reliably identify the full moderation effect (if any). In this context, we plan to replicate our study in a much larger set of countries, reflecting much more cultural and institutional heterogeneity, preferably adding non-student samples.

Our study contributes to the emerging discourse on the dark sides of PSM, providing a direct empirical response to recent theoretical appeals. When developing their multi-level conceptual framework of the potential negative effects of PSM, Schott and Ritz (2017) proposed that high-PSM people are more likely to engage in PRB, because they find it easier to derive moral justification for their acts if they perceive that their rule-breaking serves a noble cause. The reasoning of Schott and Ritz (2017) is consistent with Bolino and Grant's (2016) that the primary motive for rule-breaking is to benefit the client. Yet, we find that the principle motive for rule-breaking is not grounded in helping others, but in harming the organization instead, given the large and positive correlation (0.48) between the perception of agency loss and the

likelihood to engage in PRB, opposed to a much weaker correlation (0.09) between the motive of producing benefit for the client and PRB.

This peculiar finding further emphasizes the need for further work, as we cannot be sure what goes on here. Two possible explanations spring to mind. First, we find that this anti-bureaucracy motive has an equally strong association with the likelihood of PRB behavior as the client-specific information cues. Apparently, the act of PRB might function as an implicit expression of resistance toward the bureaucratic organization, which is in contrast with earlier work primarily focusing on the pro-client perspective. We can only speculate why this is the case. Perhaps, in Western democracies such as Germany, Belgium, and the Netherlands, bureaucracy bashing is popular among young adults, including university students. Second, the participants may recognize but do not seem to care whether or not their decision harms the fictitious organization precisely because this is what it is: a fictitious organization. This might be due to our study's external validity limitations, as discussed above. Clearly, the respondents do not actually work for this fictitious organization and, as a result, do not have any loyalty to the organization, and hence no or very limited reason to care about this fictitious organization.

Bureaucratic paradox

Our samples are all three composed of young adults without job experience in bureaucracies. What may our results imply for these bureaucracies? Max Weber was the first to formally study the principles of bureaucracy, leading to a wide popularization of the concept (Albrow, 1970; Pearce, 1995; Raadschelders, 2000). At least since Weber (1922), equity is the core principle of a bureaucracy (Udy, 1959; Warwick, Maede, & Reed, 1975). An essential strength of a bureaucracy is assumed to be the non-discriminatory implementation of policy (Mills, 1970). A bureaucracy is an organizational form well equipped to apply rules regardless of non-relevant attributes of those being ruled. In the words of Olsen (2006, p. 2 & p. 5), an ideal-type

bureaucracy is a “formalized, hierarchical, specialized [bureau] with a clear functional division of labor and demarcation of jurisdiction, standardized, rule based, and impersonal”, populated with “bureaucrats [who] are responsible for following rules with regard to their office with dedication and integrity and for avoiding arbitrary action and action based on personal likes and dislikes.” The ideal-type bureaucracy is a non-discriminatory organization with non-discriminating bureaucrats applying standardized rules efficiently without any preferential treatment.

Bureaucracies are the habitat of bureaucrats. But bureaucrats come in many different forms and shapes (Downs, 1957). Ever since Perry’s (1996) introduction of the PSM construct, scholarship in public administration and management argues that high-PSM people are attracted to (stay in) the public sector (Perry, 1996; Bozeman & Su, 2015; Vandenabeele & Skelcher, 2015). This follows from the attraction-selection-attrition (ASA) model (Wright and Grant, 2010) and homophily logic (McPherson, Smith-Lovin, & Cook, 2001), arguing that groups of people reveal in-group similarities and out-group differences. Boone, van Olffen, van Witteloostuijn, and Brabander (2004) show that top management teams are “cloning machines”, selecting in likes and selecting out dislikes. Applying ASA argumentation, Wright and Grant (2010) indeed argue that high-PSM people are more likely to land in a public sector job. Although high-PSM graduates might not enter the labor market through a public sector job, they are more likely to end up in the public sector later in their career, compared with their low-PSM counterparts. However, the empirical evidence regarding this core assumption in PSM research is still mixed (Wright, Hassan, & Christensen, 2017).

We find tentative support for the argument that these young high-PSM people who might be more likely to end up in jobs in public bureaucracies, may also be more likely to engage in discriminatory (prosocial) rule-breaking: Non-discriminatory bureaucracies tend to attract discriminatory bureaucrats. This is an intriguing paradox that suggests an important future

research agenda. Maybe, the tendency of these young high-PSM people to discriminate, like those populating our three samples, is reduced after entry into a public bureaucracy. Perhaps, socialization processes in public bureaucracies, with formal rules and informal codes *not* to discriminate, neutralize the “natural” tendency of high-PSM bureaucrats to engage in (prosocial) rule-breaking. Extensive fieldwork is required to find answers to these important questions, also exploring potential contingencies (such as national culture, preventive choice architectures, or HRM practices) that may turn a public bureaucracy into either a discriminatory or a non-discriminatory organization.

Future research

Like any empirical study, ours is associated with limitations. First, our empirical evidence is based on student samples that may not be representative of the general populations of Germany, Belgium, and/or the Netherlands. Yet, by focusing on undergraduate students predominantly engaging in (public) management and policy studies, the data are especially representative of precisely the population of students likely to seek employment in the public sector once they graduate. The current study provides a glimpse into the behavior of the key focus group of public sector recruitment candidates whose attitudes and behavior are not biased by prior work experience that might result in divergent effects of socialization processes and hence add noise to the data. The students of today are the civil servants of tomorrow. Second, as a survey-based quasi-experiment largely relying on self-reported measures, this study suffers from the general problem that self-reported behavior never fully correlates with real behavior (Fan, Miller, Park, Winward, Christiensen, Grotevant, and Tai, 2006).

Third, we measure PSM and the control variables before administering the treatment of the quasi-experiment. While this is a common practice in (quasi-)experimental research conducted online and with an anonymous sample that is hard to follow up, the PSM items related to

prosocial motives could result in an implicit response bias based on considerations of social desirability. Although unlikely with the randomized and anonymous setup of the study design (Fernandes and Randall, 1992), it is possible that this questionnaire order could possibly prime response systematically either towards being more likely to engage in PRB – if respondents related strongly to PSM’s COM dimension – or towards being less likely to engage in PRB – if respondents reacted particularly strongly to CPI. However, following recommendations of Nederhof (1985), we assume that this potential effect would be systematic across all study samples and, hence, would not substantially affect the empirical results. Fourth, this study only investigated the relation of PSM on *pro*-social forms of rule-breaking. PSM might also play a role regarding the likelihood of *anti*-social forms of rule-breaking, such as in cases where high-PSM bureaucrats actively block clients from accessing public services because they perceive these clients as undeserving. This and the effects of PSM and affect on prosocial rule-breaking may play out differently in different cultural and institutional contexts than those represented by our set of three affluent Western-European countries.

Given these limitations, we identify several further avenues for future research. First, we call for further replication in other countries in which the cultural perception of rule-breaking is more diverse than between the three European cultures included here. Replications will help to shed more light onto the effect of different bureaucratic traditions and administrative organizational cultures, and the greater institutional context on the likelihood of PRB. Second, future studies could explore further the effect of PSM as a necessary condition with distinct thresholds in discriminatory PRB behavior by systematically manipulating the client information cues. Choice-based conjoint analyses on a diverse set of clients and also bureaucrat characteristics such as age, gender, social status, religious beliefs could be a very promising method to gain further insights. Third, future research could include implicit methods (cf. Slabbinck et al., 2018) to systematically and (quasi-)experimentally scrutinize what exactly

causes asymmetric discrimination in PRB behavior to further explore the behavioral paradox of modern public sector bureaucracies.

In general, we have to recognize the weaknesses associated with experimental vignette studies, particularly those associated with (a) taking student samples and (b) using behavioral intentions to predict behavior (see, for example, Wulff and Villadsen, 2020). Our study should be regarded as yet another step on our journey to deepen our understanding of the (potential) dark sides of PSM – nothing more and nothing less. Future work is needed to continue this journey, not only by replicating our study applying a similar design, but also by adopting other designs, including field work with samples of non-students.

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TABLE 1: Respondents' socio-demographic characteristics

	Study 1	Study 2	Study 3
Sampling site	Germany	Belgium	The Netherlands
<i>n</i>	211	220	193
<i>Obs.</i>	315	322	219
Experimental treatment (<i>Obs.</i>) ^a :			
Vignette 1	33.7% (106)	33.9% (109)	33.0% (96)
Vignette 2	32.7% (103)	33.2% (107)	33.3% (97)
Vignette 3	33.7% (106)	32.9% (106)	33.7% (98)
Perceived realism			
Vignette 1	2.14 ± .80	2.45 ± .84	2.13 ± .81
Vignette 2	2.97 ± .84	3.06 ± .61	3.04 ± .66
Vignette 3	3.19 ± .70	3.10 ± .71	2.97 ± .56
Gender, male (<i>n</i>) ^a	45.0% (95)	48.6% (107)	48.2% (93)
Age in years ^a	25.84 ± 4.82	21.13 ± 2.82	22.47 ± 3.65
Field of study (<i>n</i>)			
Public administration	19.7% (38)	.	1.4% (3)
Business administration	19.2% (37)	46.8% (103)	36.1% (76)
Socioeconomics & economic policy	9.9% (19)	10.0% (22)	31.3% (66)
Political sciences	3.6% (7)	7.3% (16)	5.7% (12)
Industrial engineering and management	.	24.1% (53)	4.3% (9)
Other applied social sciences	47.7% (92)	11.8% (26)	21.3% (45)
Public service motivation	5.26 ± .98	5.53 ± .85	5.38 ± .92
Risk preference ^b	.65 ± .62	1.57 ± .63	.96 ± .61

Notes: Items are reported with geometric means and standard deviations ($M \pm SD$) or proportions (%) and frequencies (*n*). ^a Frequencies in relation to total number of observations per study sample; tested for treatment balance; all two-tailed *t*-tests within and between studies non-significant. ^b Centralized logarithmic discounting parameter.

TABLE 2: Descriptive analyses of *PRB Intent* by study

PRB Intent	Mean	SD	Treatment effect^a		
			<i>t</i>	<i>p</i>	<i>d</i>
Study 1 (GER)					
Negative treatment	1.79	.77	-6.98	.000	-1.026
Neutral treatment	2.64	.87	– <i>reference category</i> –		
Positive treatment	3.17	.89	4.19	.000	.611
Study 2 (BEL)					
Negative treatment	1.81	.67	-5.55	.000	-.804
Neutral treatment	2.38	.76	– <i>reference category</i> –		
Positive treatment	2.83	.80	3.96	.000	.573
Study 3 (NL)					
Negative treatment	1.68	.65	-6.93	.000	-.966
Neutral treatment	2.38	.80	– <i>reference category</i> –		
Positive treatment	2.73	.87	2.99	.003	.422

Notes: Values range: 1 = ‘very low’ to 5 = ‘very high’. ^a Tested against vignette 2 (“neutral”)

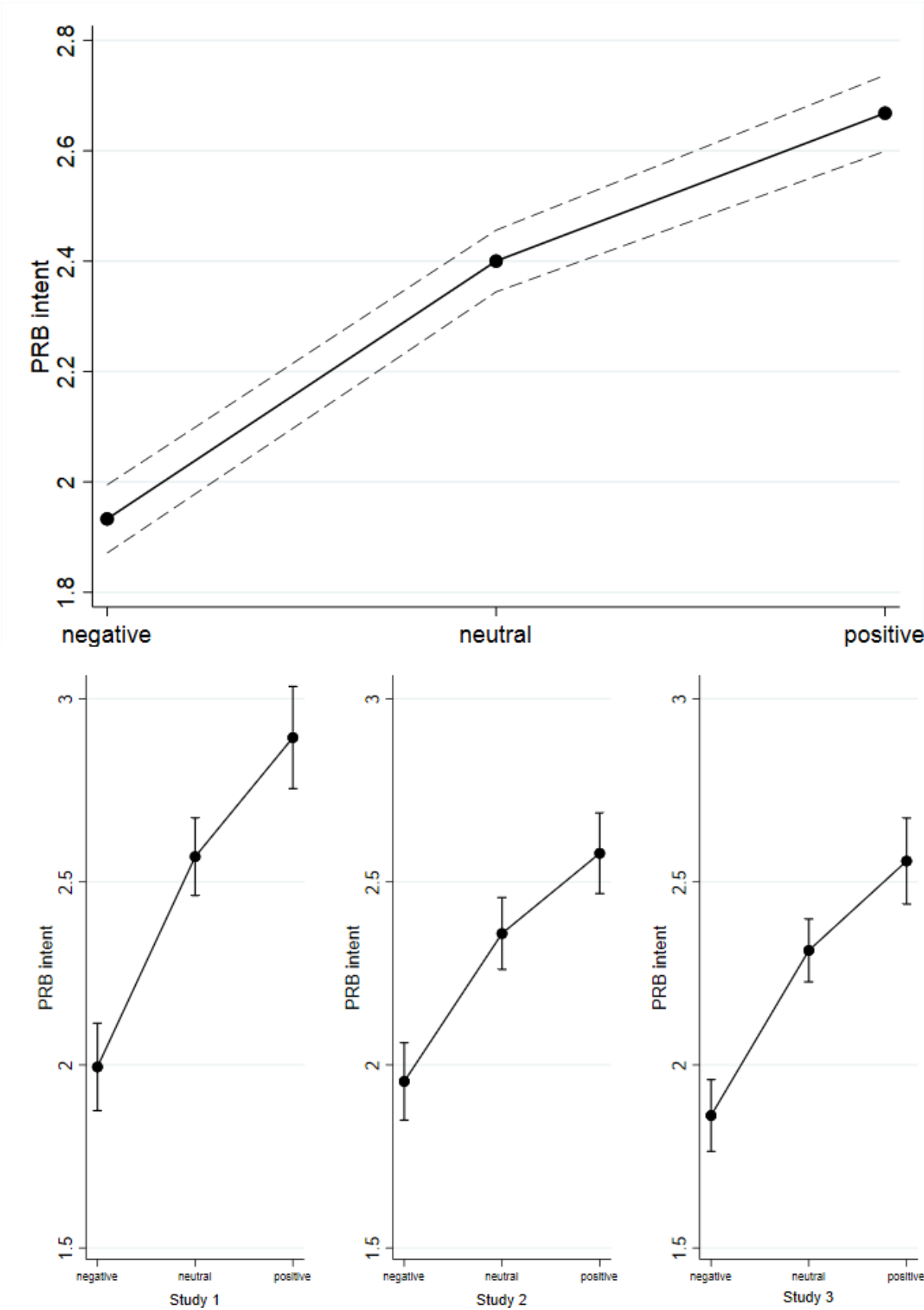
with two-tailed *t*-tests; effect sizes estimated with Cohen’s *d*-score (Welch-adjusted).

TABLE 3: Regression on *PRB Intent*

	<i>Study 1</i>	<i>Study 2</i>	<i>Study 3</i>	<i>Pooled data</i>
Independent variable				
PSM	-.023 (.04)	.053 (.05)	.047 (.04)	.028 (.03)
Treatment				
Negative	-.224* (.10)	-.047 (.08)	-.106 (.09)	-.129** (.05)
Neutral	– reference category for vignettes –			
Positive	.313** (.10)	.283** (.08)	.285*** (.08)	.310*** (.05)
Control variables				
Client’s benefit	-.037 (.04)	-.089† (.05)	.080† (.05)	-.010 (.03)
Agency’s loss	.272*** (.04)	.393*** (.04)	.453*** (.04)	.355*** (.02)
Realism	.357*** (.05)	.249*** (.05)	.141* (.07)	.262*** (.03)
Risk aversion	-.224* (.10)	.033 (.10)	-.041 (.08)	-.100† (.05)
Age	.023* (.01)	.026 (.02)	-.004 (.01)	.005 (.01)
Female	.010 (.10)	-.090 (.08)	-.158* (.07)	-.114* (.05)
German	– reference category for county effects –			
Belgian				.040 (.07)
Dutch				-.017 (.06)
Intercept	.321 (.43)	-.052 (.54)	.104 (.33)	.353 (.27)
<i>Observations</i>	386	384	397	1,239
<i>F</i>	26.47***	32.49***	31.48***	66.67***
<i>VIF</i> ^a	1.14	1.09	1.11	1.25
<i>R</i> ²	.384	.414	.456	.382
Adj. <i>R</i> ²	.370	.400	.443	.376

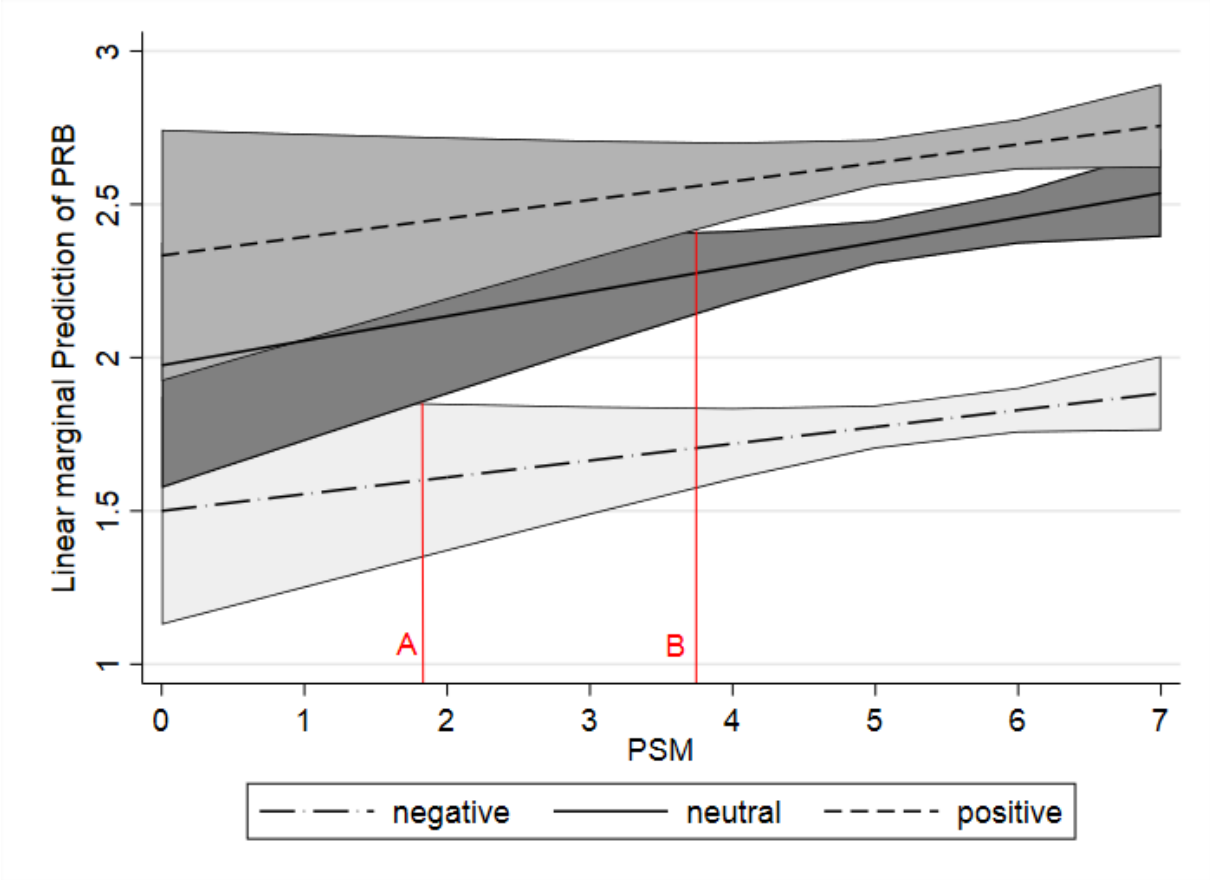
Notes: Linear regression estimates clustered at subject level for conditional contribution; heteroscedasticity-robust standard errors in parentheses; † $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. ^a Mean variance inflation factor (*VIF*): all *VIF* ≤ 1.99 .

FIGURE 1: Treatment effect



Note: Absolute effects with 95%-CIs; upper panel: pooled effect (*Obs.* = 1,239); lower panel: treatment effect split by study.

FIGURE 2: Marginal effect of treatment on the relationship between PSM and rule-breaking



Note: Shadings indicate 95%-CI; pooled data-set (*Obs.* = 1,239); red lines indicate PSM thresholds for discrimination.

[Additional online material]

APPENDICES

A.1 Structure of survey experiment and vignette treatments in English translation (extensive codebooks in German and Dutch are available upon request).

1	General introduction
2	Socio-demographic questionnaire <ul style="list-style-type: none">- Year of birth- Gender- Nationality- Field of study
3	PSM-scale (Kim 2011) <p><i>APM:</i></p> <ol style="list-style-type: none">1. I am interested in those public programs that are beneficial for my country or the community I belong to.2. Sharing my views on public policies with others is attractive to me.3. Seeing people getting benefits from a public program where I would have been deeply involved in would bring me a great deal of satisfaction. <p><i>CPI:</i></p> <ol style="list-style-type: none">4. I consider public service my civic duty.5. Meaningful public service is very important to me.6. I would prefer seeing public officials do what is best for the whole community even if it harmed my interests. <p><i>COM:</i></p> <ol style="list-style-type: none">7. It is difficult for me to contain my feelings when I see people in distress.8. I am often reminded by daily events how dependent we are on one another.

	<p>9. I feel sympathetic for the plight of the unprivileged.</p> <p>SS:</p> <p>10. Making a difference in society means more to me than personal achievements.</p> <p>11. I am prepared to make enormous sacrifices for the good of the society.</p> <p>12. I believe in putting duty before self.</p>
4	<p>Probability discounting task (Madden et al., 2009)</p>
5	<p>Introduction to prosocial rule-breaking scenarios [all study participants]:</p> <p>‘Please imagine that you are employed as a public servant at a social housing institution that assists individuals with physical disabilities or low income in finding an appropriate and affordable residence. You are employed at the organization for three years so that you are well-informed about its internal operations. One of the important activities of your job responsibilities includes settling application forms in an efficient manner.</p> <p>One client, John, asks you to prioritize his application form.</p> <p>You know that strict procedures are applicable when application forms become prioritized. The most important rules stipulate that you get permission from your manager when prioritizing an application form. However, the problem is that your manager today has to attend meetings during the entire day so that it is impossible to prioritize this application form. As a result, the dossier is likely to receive final approval within a month when it is not approved today. You doubt to approve this application without permission from your manager, which might entail potential consequences.</p> <p>Although you will not have any personal gain when prioritizing this application, you</p>

	<p>know that it would be the best for John and that it aligns with the mission of the organization that stipulates that every client needs to be helped as soon as possible.</p> <p>What would you do in the following two situations?’</p>
6	<p>Vignettes: Study participants randomly received two out of three vignette treatments, the order of which was randomized; each treatment was followed by seven Likert-type scale items:</p> <p>‘The following statements relate to the preceding scenario. Please indicate to what extent you agree with the following statements:</p> <ol style="list-style-type: none"> 1. This scenario appears realistic. [1 = ‘totally disagree’; 4 = ‘totally agree’] 2. How likely do you think you will break the rules in order to prioritize the dossier without permission from your supervisor? [1 = ‘very unlikely’; 5 = ‘very likely’] 3. How justified do you find to break the rules and to prioritize the application without permission from your supervisor? [1 = ‘very unjustified’; 5 = ‘very justified’] 4. How would you feel about breaking the rules and prioritizing the application without permission? [1 = ‘very uncomfortable’; 5 = ‘very comfortable’] 5. Breaking the rules is beneficial for the client (John). [1 = ‘totally disagree’; 5 = ‘totally agree’] 6. Breaking the rules is adverse for the organization. [1 = ‘totally disagree’; 5 = ‘totally agree’]
A	<p>Negative treatment: “Former IS-fighter”</p>

		<p>You receive an urgent application form from John, a former ISIS-fighter who led a terrorist cell in Syria that committed several assaults in which many people became wounded. John since then became interned for three years that he sat out. John is now looking for a residence so that he can rebuild his life and apply for a job.</p> <p>Therefore, he makes an appointment with you to discuss his application. After the appointment John asks you to prioritize his application.</p>
	B	<p>Neutral treatment: “Male client”</p> <p>You receive an urgent application form from John. John makes an appointment with you in order to discuss his application. After the appointment John asks you to prioritize his application.</p>
	C	<p>Positive treatment: “Disabled single father with three children”</p> <p>You receive an urgent application form from John. John is a single father with three children and has a physical disability (wheelchair patient).</p> <p>John is desperate because he has been refused by the social housing institution for the third time due to lack of space. Consequently, he is waitlisted. John makes an appointment with you in order to discuss his application. After the appointment John asks you to prioritize his application.</p>
7	Acknowledgement and end of study.	

TABLE A.2: Correlations and reliabilities

	1	2	3	4	5	6	7	8	9	10	11	12	13
Study variables													
1. PRB Intent	1												
2. Negative treatment	-.22***	1											
3. Neutral treatment	.05*	-.36***	1										
4. Positive treatment	.25***	-.29***	-.36***	1									
5. Client's benefit	.10***	-.01	-.07*	.12***	1								
6. Agency's loss	.51***	-.12***	.06*	.07*	.11***	1							
7. PSM	.09**	-.01	-.04	.01	.00	.08**	1						
8. Realism	.36***	-.21***	.13***	.13***	.14***	.18***	.13***	1					
Control variables													
9. Risk aversion	-.10**	-.03	-.01	.02	-.03	-.11***	.08**	-.01	1				
10. Age	.10***	.00	.03	-.03	-.06*	.17***	.07*	-.01	-.10***	1			
11. Female	-.04	-.01	.01	.03	.02	.03	.12***	.01	.03	-.10***	1		
12. German	.10**	-.02	-.03	.00	.01	.21***	-.08**	-.05	-.30***	.40***	.03	1	
13. Belgian	-.02	-.02	.02	-.02	.09**	-.07*	.09**	.07*	.37***	-.37***	-.01	-.45***	1
14. Dutch	-.08**	.03	.02	-.00	-.03	-.12***	-.00	-.03	-.06*	-.08**	-.03	-.46***	-.46***

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

A.3 Dependent Variable Validation

Table A.3.1 reports the results of the factor analysis and unique variances for each item, as well as the respective Kaiser-Meyer-Olkin (KMO) measure of sample adequacy. KMO mean values range between 0.64 and 0.74 across all treatment conditions and country samples, indicating meritoriously high sample adequacy (Kaiser, 1974). Prior to factor analysis, Bartlett's test for sphericity was conducted to examine whether factor items are inter-correlated. The significant χ^2 -testing results of Bartlett's test (χ^2 (3): 238.70 – 305.56, $p < 0.000$) indicate that factor items are interrelated and should load onto the same factor(s). The factor analysis results show that the three items strongly and significantly load onto one single factor. This finding is stable across all three country samples, indicating high internal and external validity of the developed construct of *PRB Intent* with its three components.

Item uniqueness (U) is a measure of the percentage of variance for the respective item that is not explained by the common factors. Values of $U = 0.6$ are considered as high. In our analysis, uniqueness values range from $U = 0.26$ to 0.55 . Items with lower uniqueness matter less for explaining the variance observed. First, across all treatments and study samples, *justification* ($U = 0.26$ to 0.39) was relatively less influential in explaining the variance observed than those items with relatively higher uniqueness values, with *likelihood* ranging from $U = 0.36$ to 0.44 and *affect* from $U = 0.42$ to 0.55 . Second, across all three samples, items are in a relatively stable and narrow range, which indicates only subtle differences between samples, further substantiating the measure's internal validity in measuring one underlying construct and its robustness against country-specific influences, indicating high external validity. Because of the high inter-correlation, high overall scale reliability (Cronbach's α ranges from 0.762 to 0.803), and the strong factor model fit, no item was excluded, and the final dependent variable of this

study is created by arithmetically sum-scoring the four indicators *likelihood*, *justification*, and *affect*.

REFERENCE

Kaiser, H. F. (1974). An index of factor simplicity. *Psychometrika* 39 (1), 31-36.

TABLE A3.1: Results of factor analysis of dependent variable by treatment and study

	Study 1 (GER)			Study 2 (BEL)			Study 3 (NL)			Pooled data		
Negative Treatment												
Factor item	Factor 1	<i>U</i>	KMO	Factor 1	<i>U</i>	KMO	Factor 1	<i>U</i>	KMO	Factor 1	<i>U</i>	KMO
Likelihood	.86	.26	.69	.81	.35	.62	.80	.36	.77	.80	.36	.73
Justification	.92	.16	.63	.83	.31	.70	.84	.29	.71	.86	.26	.67
Affect	.76	.42	.80	.76	.43	.78	.81	.34	.75	.76	.42	.78
Mean KMO	.70			.73			.74			.72		
Eigenvalue	2.16			1.92			2.01			1.96		
Bartlett <i>Chi</i> ² (3)	182.47			131.71			163.57			473.46		
<i>p</i>	.000			.000			.000			.000		
Cronbach's α	.839			.784			.809			.803		
Neutral Treatment												
Factor item	Factor 1	<i>U</i>	KMO	Factor 1	<i>U</i>	KMO	Factor 1	<i>U</i>	KMO	Factor 1	<i>U</i>	KMO
Likelihood	.92	.16	.59	.65	.58	.71	.84	.30	.74	.80	.36	.68
Justification	.91	.17	.60	.77	.41	.63	.88	.23	.69	.85	.28	.64
Affect	.57	.68	.92	.66	.56	.69	.80	.36	.79	.69	.53	.80
Mean KMO	.64			.67			.74			.69		
Eigenvalue	1.99			1.45			2.11			1.83		
Bartlett <i>Chi</i> ² (3)	163.93			79.47			181.81			405.69		
<i>p</i>	.000			.000			.000			.000		
Cronbach's α	.800			.709			.836			.791		
Positive Treatment												
Factor item	Factor 1	<i>U</i>	KMO	Factor 1	<i>U</i>	KMO	Factor 1	<i>U</i>	KMO	Factor 1	<i>U</i>	KMO
Likelihood	.78	.40	.65	.72	.48	.65	.77	.41	.72	.75	.44	.69
Justification	.80	.35	.64	.79	.37	.61	.73	.48	.77	.78	.39	.66
Affect	.62	.62	.80	.60	.64	.75	.81	.35	.68	.67	.55	.77
Mean KMO	.68			.66			.72			.70		
Eigenvalue	1.63			1.51			1.77			1.62		
Bartlett <i>Chi</i> ² (3)	100.61			82.65			118.34			315.13		
<i>p</i>	.000			.000			.000			.000		
Cronbach's α	.748			.722			.789			.762		

Notes: *U* = uniqueness; KMO = Kaiser-Meyer-Olkin measure.

A.4 Additional analysis on selected treatment and spillover effects

For each country sample, the order of vignette treatments was randomized before randomly drawing two out of three vignettes for each respondent. Compared to a between-subject design in which each respondent would receive only one single vignette, this approach dramatically reduces the number of respondents needed to achieve reasonable sample sizes to investigate treatment effects with respect to the anticipated effect sizes. Yet, this way of distributing the treatments could potentially confound the observed treatment effect on the main dependent variable because showing two randomly drawn vignettes to each respondent actually creates latent clusters between respondents based on the unique vignette order they received. For instance, the effect of receiving a positive vignette first followed by a neutral vignette next could relatively outweigh the effect of receiving two extreme conditions – for instance, in the form of first receiving a negative vignette followed by a positive vignette.

The technical implementation of our quasi-experimental design allows us to identify three unique combinations – “clusters” – of vignettes, as described in Table A.4.1: *neutral & negative* (cluster *C1*), *negative & positive* (cluster *C2*), and *neutral & positive* (cluster *C3*). Cluster *C2* represents the combination of receiving the two extreme treatment conditions. In order to investigate whether the clustering of the vignette within each respondent resulted in selected treatment or spillover effects, we conduct a series of two-tailed *t*-tests between these three clusters on the pooled data, and we redo the regression analyses (main effects and, subsequently, adding interaction terms; both clustered at the level of the individual for conditional contribution) using the treatment clusters instead of the singular vignette treatments.

Descriptive mean-based analysis of *PRB Intent* by clusters (see Table A.4.1) instead of singular treatments provides further support for hypotheses *H2a* and *H2b* as well as the finding that negative affect cues have a larger negative impact on *PRB Intent* than positive affect cues have a positive impact. Respondents receiving both the neutral and the positive vignettes (*C3*) are

substantially more likely to engage in PRB behavior ($C3$: $M = 2.71$, $SD = 0.84$) compared with respondents who received the negative affect cue paired with either the positive ($C2$: $M = 2.34$, $SD = 0.98$) or the neutral cue ($C1$: $M = 2.25$, $SD = 0.91$).

TABLE A.4.1: Descriptive statistics of *PRB Intent* by treatment cluster

<i>PRB Intent</i>		Obs.	Mean	SD	Min	Max
Cluster description						
$C1$	Neutral & negative treatment	248	2.250	.910	1.000	4.642
$C2$	Negative & positive treatment	222	2.342	.981	1.000	5.000
$C3$	Neutral & positive treatment	196	2.707	.844	1.000	4.642

Notes: Pooled data; *PRB Intent* values range: 1 = ‘very low’ to 5 = ‘very high’.

Mean comparison analysis reveals that cluster-based selected treatment effect do not confound the findings presented in the main body of this study, but rather confirm the observation that negative affect cues relatively outweigh positive affect cues: Receiving a combination of a neutral and positive treatment stimuli ($C3$) correlates with a higher likelihood of *PRB Intent* compared to receiving any cluster including a negative affect cue, hence $M_{C3} > M_{C1}$ and $M_{C3} > M_{C2}$.

TABLE A.4.2: Between-cluster differences of *PRB Intent*

<i>PRB Intent</i>		t	p	$ d $
Cluster comparison				
$C1$ vs $C2$	[neutral & negative] vs. [negative & positive]	1.058	.290	.098
$C2$ vs $C3$	[neutral & positive] vs. [negative & positive]	4.049	.000	.397
$C3$ vs $C1$	[neutral & positive] vs. [neutral & negative]	5.424	.000	.518

Notes: Clustered treatment effect; tested with two-tailed t -tests; effect sizes estimated with Cohen’s d -score (Welch-adjusted).

Furthermore, two-tailed t -testing for between-treatment cluster differences of *PRB Intent* (see Table A.4.2) reveals that receiving the neutral and negative treatment cluster ($C1$) has the same effect on *PRB Intent* than receiving the negative and positive treatment cluster ($C2$); $t = 1.058$, $p = 0.290$, $d = |0.098|$. In contrast, there are significant differences in dependent variable

outcome when comparing cluster *C3* with either *C2* or *C1* (*C3* vs *C2*: $t = 4.049$, $p = 0.000$, $d = |0.397|$; *C3* vs *C1*: $t = 5.424$, $p = 0.000$, $d = |0.518|$). Hence, we do observe selected treatment effects, but these are in line with our hypotheses, that is, both findings mirror the results of the main (treatment-based) analysis and can be explained by two compound effects. Although the vignette treatments were developed in a diligent procedure using an expert panel, to warrant their relative affective equivalence, negative stimuli are generally more salient than positive stimuli and, consequently, both clusters that incorporate the negative affective cues toward the client in the vignette (*C1* and *C2*) logically result in lower likelihoods of *PRB Intent*. Consequently, the latent cluster analysis does not indicate that the randomization procedure created obtrusive artefacts based on selected treatment or spillover effects, but rather confirm the results of the main analysis testing *H2a* and *H2b* by showing that practically irrelevant client information substantially and asymmetrically influences *PRB Intent*.

Replicating the regression analyses by vignette clusters (see Table A.4.3) further substantiates this result by showing that both the direction and the relative size of the association between the vignette treatment respondents received and *PRB Intent* directly match the results reported in Table 3 in the main body of this study. The association of receiving a negative treatment combined with any of the other treatments and *PRB Intent* is substantially smaller (*C1*: $\beta_2 = 0.089$, $p = 0.148$; *C2*: $\beta_3 = 0.166$, $p = 0.008$) than receiving a neutral and positive treatment (*C3*: $\beta_4 = 0.342$, $p = 0.000$). All other associations between the remaining independent variables and *PRB Intent* remain stable, as does the amount of variance explained by our models. Thus, the vignette-cluster-based analysis matches our findings in the main analysis we conclude that the current experimental setup was robust against selected effects involuntarily induced by latent vignette clustering, and hence that selected treatment or spillover effects between vignettes were not an issue.

TABLE A.4.3: Regression on *PRB Intent* by clustered treatments

	<i>Pooled data</i>		
	β	<i>p</i>	<i>rob. SE</i>
Independent variable			
PSM	.028	.293	(.03)
Treatment effect			
<i>C1</i> : neutral & negative	.089	.148	(.06)
<i>C2</i> : negative & positive	.166**	.008	(.06)
<i>C3</i> : neutral & positive	.342***	.000	(.08)
Client's benefit	.002	.957	(.03)
Agency's loss	.360***	.000	(.02)
Realism	.278***	.000	(.03)
Control variables			
Risk aversion	-.086	.109	(.05)
Age	.003	.547	(.01)
Female	-.118*	.018	(.05)
German	– reference category for county effects –		
Belgian	.025	.739	(.08)
Dutch	-.035	.584	(.06)
Intercept	.290	.307	(.28)
<i>Obs.</i>			1,239
<i>F</i>			52.56***
<i>VIF</i> ^a			1.25
<i>R</i> ²			.359
<i>Adj. R</i> ²			.353

Notes: Linear regression estimates clustered at subject level for conditional contribution; heteroscedasticity-robust standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$. ^aMean variance inflation factor (*VIF*): all $VIF \leq 2.00$.

Consequently, we have confidence in our findings and methodological approach, but encourage scholars conducting future replications of the current study to recognize the methodological risk of introducing additional noise by automatized randomization procedures that might potentially result in latent vignette-clusters in treatment distribution among respondents.

Although we do not find evidence for selected treatment or spillover effects induced by latent treatment clusters, future replication studies could, alternatively, use a pure between-subject design in which respondents receive, first, a non-affective neutral vignette to set a benchmark across respondents followed by, second, a single (positive, negative, or neutral) treatment

vignette randomized across the whole sample to rule out the potential of treatment cluster-based artefacts. Yet, researchers following this approach should be aware that they would have to work with substantially larger sample sizes to achieve the same level of power, which – due to increasing between-subject heterogeneity – might induce further noise into the data, while the expected benefit of circumventing marginally small cluster effects is limited. Research pragmatism, hence, suggests that replicating the current study in its original design would be the most advisable.

A.5 Additional explorative analysis on interaction effects

In order to further explore the asymmetric treatment-related client affect on the effect of *PSM* on *PRB Intent*, we conducted additional post-hoc analyses exploring the potential interaction effects between *PSM* and treatments. In the expectation of a linear relation between *PRB Intent* and the experimental variables, as well as controls, we specify our direct effects model (Model I) as

$$\begin{aligned} SRB Intent = & \beta_1 PSM + \beta_{2;3} Treatment + \beta_{4;5} Motiv + \beta_6 Realism + \\ & \beta_7 Risk Aversion + \beta_8 Age + \beta_9 Female + \beta_{10;11} Country + \varepsilon_i. \end{aligned}$$

We use the neutral vignette scenario as a reference category for the treatment effects and we, first, analyze each country study individually and then pool the data for a combined sample in which the German sample arbitrarily serves as the reference category. Subsequently, we add two-way interaction terms between treatment and *PSM* in the second model (Model II), which is specified as

$$\begin{aligned} PRB Intent = & \beta_1 PSM + \beta_{2;3} Treatment + \beta_5 Negative \times PSM + \beta_6 Positive \times \\ & PSM + \beta_{7;8} Motiv + \beta_9 Realism + \beta_{10} Risk Aversion + \beta_{11} Age + \beta_{12} Female + \\ & \beta_{13;14} Country + \varepsilon_i. \end{aligned}$$

The results of the regression analyses of both Models I and II are presented in Table A.5.1. In **Study 1** (German sample), we find no significant moderation effects between high *PSM* and treatments (negative: $\beta_{115} = -0.040$, $p = 0.713$; positive: $\beta_{116} = -0.189$, $p = 0.104$); $F_{II}(11, 386) = 21.99$, $p = 0.000$; adj. $R^2_{II} = 0.414$. Similarly, conducting regression analyses with the data of **Study 2** (Belgian sample) ($F_{II}(11, 384) = 20.69$, $p = 0.000$; adj. $R^2_{II} = 0.399$; see Model II of Study 2 in Table A.5.1), **Study 3** ($F_{II}(11, 397) = 21.81$, $p = 0.000$; adj. $R^2_{II} = 0.440$; see Model II of Study 3 in Table A.5.1), and the **pooled data** ($F_{II}(11, 1,239) = 29.94$, $p = 0.000$; adj. $R^2_{II} = 0.397$; see Model II of *Pooled data* in Table A.5.1) support the main findings of the current

study but including interaction terms reveals no additional interaction effects between PSM and treatment reception. In total, the analysis indicates no substantial additional interaction effect between respondents' level of *PSM* and receiving a negative or positive treatment on the likelihood of *PRB* throughout all three country studies.

TABLE A.5.1: Regression on *PRB Intent* including interaction effects

	<i>Study 1</i>		<i>Study 2</i>		<i>Study 3</i>		<i>Pooled data</i>	
	<i>I</i>	<i>II</i>	<i>I</i>	<i>II</i>	<i>I</i>	<i>II</i>	<i>I</i>	<i>II</i>
Independent variable								
PSM	-.096† (.05)	.037 (.754)	.055 (.06)	.127 (.269)	.044 (.05)	.112 (.281)	.004 (.03)	.080 (.218)
Treatment								
Negative	-.338** (.11)	-.130 (.822)	-.187* (.09)	.715 (.277)	-.190† (.11)	.679 (.228)	-.235*** (.06)	.263 (.453)
Neutral	– reference category for vignettes –							
Positive	.342*** (.10)	1.339* (.031)	.278** (.09)	.135 (.820)	.314*** (.09)	-.163 (.741)	.314*** (.05)	.538 (.108)
Two-way interactions								
Negative x PSM		-.040 (.713)		-.164 (.164)		-.164 (.128)		-.092 (.154)
Positive x PSM		-.189 (.104)		.029 (.790)		.091 (.317)		-.041 (.508)
Control variables								
Client's benefit	-.057 (.05)	-.045 (.325)	-.066 (.06)	-.077 (.218)	.084 (.06)	.070 (.239)	-.006 (.03)	-.007 (.827)
Agency's loss	.309*** (.04)	.311*** (.000)	.385*** (.04)	.385*** (.000)	.450*** (.05)	.458*** (.000)	.369*** (.03)	.369*** (.000)
Realism	.310*** (.06)	.307*** (.000)	.224*** (.06)	.220*** (.000)	.115 (.08)	.107 (.157)	.229*** (.06)	.228*** (.000)
Risk aversion	-.296** (.11)	-.317** (.007)	.045 (.06)	.022 (.853)	.016 (.09)	.001 (.988)	-.102† (.06)	-.104† (.074)
Age	.022* (.01)	.025* (.014)	.020 (.02)	.021 (.348)	-.006 (.01)	-.011 (.305)	.003 (.01)	.003 (.760)
Female	.089 (.10)	.086 (.398)	-.093 (.09)	-.084 (.345)	-.185* (.08)	-.186* (.030)	-.103† (.05)	-.095† (.078)
German	– reference category for county effects –							
Belgian							.048 (.08)	.047 (.560)
Dutch							-.027 (.07)	-.027 (.698)
Intercept	0.888* (.43)	.079 (.915)	.157 (.58)	-.205 (.798)	.257 (.40)	.088 (.879)	.650* (.29)	.241 (.576)
<i>Observations</i>	386	386	384	384	397	397	1,239	1,239
<i>F</i>	25.88***	21.99***	25.86***	20.69***	25.27***	21.81***	57.58***	49.94***
<i>VIF</i> ^a	1.18		1.11		1.13		1.28	
<i>R</i> ²	.430	.437	.414	.422	.449	.460	.404	.406
Adj. <i>R</i> ²	.411	.414	.395	.399	.432	.440	.397	.397

Notes: Linear regression estimates clustered at subject level for conditional contribution; Model I: direct effects, heteroscedasticity-robust

standard errors in parentheses; Model II: with interaction effects (*p*-values in parentheses); † $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.^a

Mean variance inflation factor (*VIF*): all $VIF \leq 2.04$.

A.6 Additional Analysis on Treatment Effect

TABLE A.6.1: Regression on *PRB Intent*

	<i>Study 1</i>		<i>Study 2</i>		<i>Study 3</i>		<i>Pooled data</i>	
	<i>I</i>	<i>II</i>	<i>I</i>	<i>II</i>	<i>I</i>	<i>II</i>	<i>I</i>	<i>II</i>
Independent variable								
PSM		-.023 (.04)		.053 (.05)		.047 (.04)		.028 (.03)
Treatment								
Negative		-.224* (.10)		-.047 (.08)		-.106 (.09)		-.129** (.05)
Neutral				– reference category for vignettes –				
Positive		.313** (.10)		.283** (.08)		.285*** (.08)		.310*** (.05)
Control variables								
Client’s benefit	-.023 (.04)	-.037 (.04)	-.053 (.05)	-.089† (.05)	.083† (.05)	.080† (.05)	.006 (.03)	-.010 (.03)
Agency’s loss	.278*** (.04)	.272*** (.04)	.399*** (.04)	.393*** (.04)	.482*** (.04)	.453*** (.04)	.367*** (.02)	.355*** (.02)
Realism	.409*** (.05)	.357*** (.05)	.277*** (.05)	.249*** (.05)	.182** (.06)	.141* (.07)	.304*** (.03)	.262*** (.03)
Risk aversion	-.198† (.11)	-.224* (.10)	.028 (.10)	.033 (.10)	-.003 (.08)	-.041 (.08)	-.077 (.05)	-.100† (.05)
Age	.021† (.01)	.023* (.01)	.021 (.02)	.026 (.02)	.002 (.01)	-.004 (.01)	.003 (.01)	.005 (.01)
Female	.033 (.10)	.010 (.10)	-.036 (.08)	-.090 (.08)	-.178* (.08)	-.158* (.07)	-.102* (.05)	-.114* (.05)
German				– reference category for county effects –				
Belgian							.017 (.08)	.040 (.07)
Dutch							-.024 (.07)	-.017 (.06)
Intercept	.035 (.41)	.321 (.43)	.187 (.51)	-.052 (.54)	.190 (.27)	.104 (.33)	.402 (.26)	.353 (.27)
<i>Observations</i>	386	386	384	384	397	397	1,239	1,239
<i>F</i>	34.04***	26.47***	36.73***	32.49***	43.99***	31.48***	72.15***	66.67***
<i>VIF</i> ^a	1.11	1.14	1.04	1.09	1.04	1.11	1.27	1.25
<i>R</i> ²	.338	.384	.380	.414	.422	.456	.341	.382
Adj. <i>R</i> ²	.327	.370	.370	.400	.413	.443	.337	.376

Notes: Linear regression estimates clustered at subject level for conditional contribution; heteroscedasticity-robust standard errors in parentheses;

Model I: base-line model; Model II: with independent and treatment variables; † $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. ^a Mean variance

inflation factor (*VIF*): all $VIF \leq 1.99$.