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PUBLIC SERVICE MOTIVATION AND PRO-SOCIAL RULE-BREAKING

An international vignettes study in Belgium, Germany and the Netherlands

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ABSTRACT

We theorize that people with high Public Service Motivation (PSM) are especially prone to engage in (pro-)social rule-breaking (SRB) behavior, which ultimately leads to discriminatory practices, particularly if moderated by positive affect. We test our argument by conducting an original vignette-based study in three countries (Belgium, Germany and the Netherlands) with 1,239 observations in total. Our findings provide first behavioral evidence on the linear relationship between PSM and the likelihood of SRB. The results reveal that the relation between PSM and SRB is moderated asymmetrically by client-based information affect cues: Negative affect cues have a larger negative effect than positive affect cues have a positive effect. This means that high-PSM people are not only more likely to engage in SRB, but that they also discriminate more sharply between clients they perceive to be more deserving than their low-PSM peers.

Keywords: Social Rule-Breaking, Public Service Motivation, Risk behavior, Multi-site design

INTRODUCTION

A widely-studied concept in public administration and public management is Public Service Motivation (PSM). A central claim in this literature is that high-PSM people tend to behave differently vis-à-vis their low-PSM counterparts. For example, Esteve et al. (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 dark side of PSM. Specifically, we argue that high-PSM people are more likely to engage in discriminatory rule application than their low-PSM counterparts. After all, high-PSM individuals are assumed to be driven by the intrinsic motivation to help other people (van Witteloostuijn, Esteve, and Boyne 2017). This care motive is an essential part of the PSM construct. Hence, we reason 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.

In this paper, we report evidence from a multi-site, three-country vignette study designed to explore this potential dark side of PSM. Specifically, the current study reports findings of a between-subject randomized vignette-based quasi-experiment regarding (pro-)social rule-breaking (SRB) in a public service setting, examining the impact of PSM. 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 as a potentially important micro-determinant of SRB. Hence, 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 provided about the client in the form of either neutral, adverse, or compassionate stimuli to create sufficient treatment variation. So, in all, 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 SRB.

The research design of this study comes with a few crucial methodological advantages. First, this study employs an experimental design – following pleas of van Witteloostuijn (2015) and Walker, James, and Brewer (2017) – because this offers the opportunity to identify treatment-related causal mechanisms (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, James, and Brewer (2017), this study conducts a comparative multi-country study allowing the analysis of 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, James, and Brewer (2017), Vandenabeele, Ritz, and Neumann (2018), and Walker et al. (2018) to conduct replication studies, offering opportunities to reflect on the generalizability of the findings and to discuss their boundary conditions.

THEORY

Public Service Motivation and pro-social rule-breaking

Although the principle of non-discrimination among citizens and clients (i.e., equity) is still a core foundation of today's public sector, reality in public organizations often looks different. In a recent systematic review, Tummers et al. (2015) argue that prioritizing among 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, 1108), bureaucrats make use of their *de facto* discretion to deal with the challenges

of public service delivery. Yet, the consequence is that some clients are prioritized to the disadvantage of other clients, 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 pro-social behavior. This strategy 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 against the client (Tummers et al. 2015, 1108). Yet, moving either toward or against the client is associated with risk since both strategies are discriminatory, threatening the fundamental principle of equity that is at the core of public bureaucracies. This paper's central claim is that Public Service Motivation (PSM) plays a key role here in co-determining rule-breaking vis-à-vis rule-obeying behavior.

PSM can be defined as "an individual's predisposition to respond to motives grounded primarily or uniquely in public institutions and organizations" (Perry and Wise 1990, 368). The central idea of PSM scholarship is that people with high PSM 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 and Wise 1990; Perry, Hondeghem, and Wise 2010). Furthermore, research by Oberfield (2014), as well as Vogel and Kroll (2016), finds that an individual's level of PSM is relatively stable over time, making this a very important concept indeed to understand individuals' motivation in working for public sector organizations.

The rich body of research on PSM largely argues that people with high PSM are more likely to be attracted to working in the public sector (Kjeldsen and Jacobsen 2013). When examining the underlying dimensions of PSM more closely, PSM actually incorporates very distinct conceptual ideas. More precisely, the concept of 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: i.e., in the clients' immediate interest (Kim 2008; Vandenabeele 2008).

PSM does not only influence employee motivation and behavior, but is also argued to be positively related with individual and organizational performance (Alonso and Lewis 2001; Bellé 2012; Ritz, Brewer, and Neumann 2016). Yet, Perry and Wise (1990) already noted that high PSM might potentially have negative effects for bureaucratic organizations. To date, research about these dark sides of PSM is fairly limited, and empirical evidence – to the best of our knowledge – is even scarcer, despite some explicit calls (Steen and Rutgers, 2011). One of the first to address this issue were Giauque, Anderfuhren-Biget, and Varone (2013), revealing that the PSM dimensions of COM and SS are related to higher satisfaction rates after resigning from public service, while the other two dimensions of APM and CPI are associated with reduced satisfaction after resignation. In accordance with Schott and Ritz (2017), PSM is also reported to positively correlate with stress (Giauque et al. 2012), burnout and job dissatisfaction (Van Loon, Vandenabeele, and Leisink 2015), absenteeism (Koumenta 2015), and over-attachment leading to adverse presentism (Andersen and Hjortskov 2016).

We argue that a potential downside of PSM is a higher likelihood of pro-social rule-breaking. Rule-breaking is a concept that has been discussed frequently in the entrepreneurship literature (Obschonka et al. 2013; Warren and Smith 2014; Arend 2016; Elert and Henrekson 2017). Rule-breaking can be characterized as 'institutional deviation', which means that individuals deviate from the behavior stipulated by implicit and/or explicit rules of institutions (Elert and

Henrekson 2017). Traditionally, 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. Consequently, this rule-breaking behavior is primarily considered as unethical and self-oriented in the sense that the goal is to serve one's self-interest at the expense of the public's interest (Robinson and Bennett 1995; Griffin and Lopez 2005; Hodson et al. 2012; Arend 2016). The literature defines these forms of rule-breaking as pro-self or anti-social (Nogami and Takai 2008).

Most studies stress the negative consequences of rule-breaking. However, deviations from the behavioral norms set by institutions can also function as a remedy if these norms are (seen as) dysfunctional (Vadera, Pratt, and Mishra 2013). In this sense, rule-breaking can also be pro-social instead of pro-self when the primary intention is to help others (Morrison 2006). However, little is known about (pro-)social rule-breaking (SRB), as only limited empirical research has been conducted on this issue. A query in the Web of Science gives five hits only: Morrison (2006), Dahling et al. (2010), Parks, Ma, and Gallagher (2010), Vardaman, Gondo, and Allen (2014), and Ambrose, Taylor, and Hess (2015). Morrison (2006, 6) pioneers SRB 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) reports the findings from three studies, based on phone interviews, face-to-face interviews, and one quantitative study exploring the antecedents of SRB.

In her initial study, Morrison (2006) identifies three forms of SRB: rule-breaking to (a) facilitate work performance, (b) help another member of the organization, and (c) provide good customer service (Morrison 2006). Morrison's vignettes study shows that participants are more likely to indicate that they would engage in SRB if the job in the scenario was characterized by high autonomy and if the scenario revealed that other employees had also engaged in SRB

in the past. Furthermore, (self-reported) risk-taking propensity is found to be positively related with the likelihood of SRB (see also Dahling et al. 2010). Elaborating on these findings, Dahling et al. (2010) develop and validate a general scale to capture the likelihood of SRB. In a conceptual study, Parks, Ma, and Gallagher (2010) argue that work characteristics such as autonomy and risk-propensity have an impact on SRB. Vardaman, Gondo, and Allen (2014) suggest that the ethical norms of the organization play a major role in explaining SRB, proposing that a climate of instrumental and law-incongruent standards is likely to increase the chances of SRB. Ambrose, Taylor, and Hess (2015) contribute to a further conceptualization of the antecedents of SRB by describing the latter as a deontic reaction to the organizations' unfair policies toward customers. They furthermore propose that the likelihood of SRB increases with organic workgroup structures, low workgroup service motivation, and substantial supervisor support for SRB.

Translated to the context of modern public bureaucracies, examples of SRB could be shortcutting lengthy bureaucratic procedures to the benefit of a client requesting public services, with no direct and functional benefit for the civil servant taking the shortcut (Morrison 2006; Dahling et al. 2010). Seemingly benevolent, SRB can be a fundamental and severe problem for public bureaucracies as the core equity principle is violated, and because the hierarchical logic of top-down rules and 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 SRB actively breaks down the core principles of public bureaucracies (Udy 1959; Mills 1970).

So how may PSM be related to SRB? We argue that high-PSM people are more likely to break the rules for noble causes. The discriminatory effect of high PSM is supported by another study of Andersen and Serritzlew (2012), revealing that public service providers with high PSM are

more likely to deviate from profit-maximizing strategies in order to help more needy clients – or rather, those clients they regard as more needy. Moreover, 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. This again indicates that high PSM potentially leads to discriminatory behavior in the form of SRB.

HYPOTHESIS 1 (H1): The relationship between the decision-maker's PSM and the likelihood of SRB is positive, implying that the likelihood of SRB increases with higher PSM.

The role of client-based information cues

Classical economic theory's ideal-typical benchmark assumes that people behave as economic agents who make perfectly objective and informed decisions with the only goal to maximize their self-interest (Von Neuman 1947). Behavioral choice theory argues that human rationality is frequently bounded, which is backed by impressive evidence from both behavioral economics and cognitive psychology. In many occasions, peoples' decisions are driven by a mixture of utility maximizing and satisficing strategies (Simon 1945). Depending on the context, both strategies are rational in the sense that they help to "maximize" an actor's very own "utility function", which may well include the interest of others next to one's own, by making informed decisions under limiting conditions and binding constraints (van Witteloostuijn 1988). The behavioral approach is especially useful to explain peoples' behavior when they have to deal with incomplete information, risk and uncertainty, which is all too common in many real-life conditions.

In public bureaucracies, SRB is a risky endeavor because there is a real threat that breaking the rules to the benefit of a client will be noticed higher up in the hierarchy. Furthermore, SRB is associated with uncertainty because the likelihood and magnitude of the potential adverse consequences for both the actor him/herself and for the organization are unknown, and are,

consequently, incalculable. If odds cannot be calculated, people (subconsciously) rely on heuristics to cope with the motivational conflict between the wish to pro-socially help a client and the potential of experiencing adverse consequences from doing so. Heuristics are cognitive rules of thumb that are activated by internal and external cues, and that help making sufficiently "good" decisions under uncertainty by reducing complexity (Gigerenzer and Goldstein 1996). Such external cues could be, for instance, the perception of organizational mistreatment of customers (Ambrose, Taylor, and Hess 2015), or specific client characteristics that trigger sympathy toward this client, so 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 because they substantially influence attitudes and preferences, and hence behavior (Kahneman 2003; Thaler and Sunstein 2008).

Real public servants facing real clients with real problems are challenged with the daunting task of trying to match the formalized rules and procedures with the dire needs of their needy clients. Street-level bureaucrats will, oftentimes, inevitably be emotionally affected by their clients' fate. For instance, Buurman and Dur (2012) found that caseworkers that were weakly altruistic toward clients preferred to not allocate help to needy but unwilling clients, rather than sanctioning them. These findings also resonate with those of Jilke and Tummers (2018), who found teachers to be more willing to help students who worked hard, rather than to help students who were merely successful according to the bureaucratic criteria of success. Affect can be positive – e.g., in the form of having empathy or sympathy for another person – or negative – e.g., in the form of disliking another person (Eisenberg 2000). A large body of psychological research shows how affect – i.e., liking or disliking – does moderate behavior (see, e.g., Fazio 2001; Oikawa, Aarts, and Oikawa 2011). In a similar vein, we argue that the relationship between PSM and the likelihood of SRB is moderated by affect toward the client.

Empirical research by Scott (1997) shows that bureaucrats' use of their discretion in decision-making 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 attitudes or traits of the decision-maker him/herself. Furthermore, Scott's (1997) study reveals 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. These results resonate with earlier findings by Goodsell (1980; 1981), who provides evidence that clients who gave cause for compassion because they exhibited greater need will also receive proportionally greater benefits. Also, an experimental study by Weimann (1982) indicates that bureaucrats can be easily swayed by clients who use 'altruistic' – i.e., pro-social – appeals that result in positive affect toward the client.

Consequently, we assume that positive affect is directly linked with a higher likelihood of SRB. Indeed, more recent empirical findings also point into this direction. For instance, conducting a series of laboratory experiments, Christian and Alm (2014) report that people who are very pro-socially motivated, in the sense of being more than averagely concerned with other peoples' wellbeing, as expressed by these other peoples' emotional state, are more likely to be tax compliant. Research from the for-profit sector can also be used to support this argument. For example, Gino and Pierce (2009; 2010) show that clerks are more likely to give discounts to certain customers if they feel empathy or sympathy toward these customers, which obviously implies discriminating against the rest of the customer base.

HYPOTHESIS 2a (H2a): The likelihood of SRB increases with the decision-maker's positive affect toward a client.

Client discrimination based on the perception of individual deservingness can also lead to adverse consequences for clients who are perceived as less likeable or less needy (Weimann

1982; Scott 1997; Goodsell 1980; 1981). This is especially evident when street-level bureaucrats have to make decisions without face-to-face contact with their clients. For instance, 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 the perceived deservingness of the clients. 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, eventually, decreased the likelihood of generously applying the eligibility rules. Having a negative attitude vis-à-vis the client also decreases the priority given to the cases of these clients.

HYPOTHESIS 2b (H2b): The likelihood of SRB decreases with the decision-maker's negative affect toward a client.

METHODS

Multi-national vignette study

We test our hypotheses by conducting an original vignette-based online study modelling the typical choice dilemma of SRB in public services. This study was conducted between April and August 2017 with three independent convenience country samples in Belgium, Germany, and the Netherlands. Potential study participants were invited through an e-mail distributed among 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. Socio-demographic characteristics of respondents are discussed in more detail in the subsequent results section and presented in Table 1.

[Please Insert Table 1 about here]

The survey and the vignette stimuli were carefully designed by an international team of researchers to make sure that the treatment was equally reliable and logical in the specific context of civil services for all three countries. If necessary, scale measures validated in prior research were translated with due diligence from English into German and Dutch in a triple-blind procedure to maximize translation reliability. Furthermore, adequate and rigorous pre-tests were conducted prior to launching the vignettes (Finch 1987; Wilson and While 1998). In the prospect of small to medium-sized effects (Cohen's $d \leqslant 0.3$; power = 0.8; $\alpha = 0.05$), samples per country should at least comprise $n = 176$ respondents (Ellis 2010), which has been achieved for each sample. 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

We designed three different 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 personally 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 to the participants. This realism increases the ecological reliability and validity of measured responses (Hughes and Huby 2004). Thus, vignettes are very powerful instruments in triggering context-dependent behavior with high internal and external validity under highly controlled experimental conditions that allow for systematic variation of treatments in a very economical manner (Aguines and Bradley 2014).

Our study comprises four parts, which are presented in Appendix A.1 in full detail. First, study 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 to capture individuals' PSM, with the standard quadruple of underlying dimensions (COM, SS, APM, and CPI), and answer values ranging from 1 (= 'absolutely disagree') to 7 (= 'absolutely agree').

Vardaman, Gondo, and Allen (2014) offer a set of propositions in which individual attributes such as risk preference are argued to increase the likelihood of SRB. This should, therefore, be controlled for in empirical studies. Consequently, we use Madden, Petry, and Johnson's (2009) PDQ to reveal respondents' risk preferences. Based on a total of 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, Petry, and Johnson's (2009) measure is very reliable in predicting not just preferences, but also real choice under risk (Green and Myerson 2004), while at the same time being very robust against conscious manipulation. The resulting 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 characterized as risk-averse.

In the fourth and last part of the study, respondents were randomly assigned to two out of three vignette treatments. 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 and procedures. The manipulation is through the (lack of) specific information given about the client's

background, aiming to trigger different emotional affects toward the client. The first vignette describes a male client with a very negative criminal track-record, who is also 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). Including a control group by way of benchmark is essential for experimental research, with randomization offering the opportunity for causal inference (Meyer, van Witteloostuijn, and Beugelsijk 2017). The third vignette is designed to prime favorable affect, as triggered by an emotion such as compassion, by presenting 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. Furthermore, the vignettes make very clear that the civil servant will not benefit personally in any way from prioritizing the client's case. The cases described in the vignettes 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.

The above setup implies that we have a quasi-experimental design. On the one hand, our design is not fully experimental (hence the "quasi"), as our key dependent variable is PSM, which cannot be "randomly treated". PSM is a feature of an individual that we – as is standard in the literature – had to measure through a survey scale. Below, 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. On the other hand, our other central variable is affect, which we could randomly vary across study participants through an experimental vignettes design. This implies that we are able to engage with causal inference

regarding this second variable. Together, this implies that we have a so-called quasi-experimental design (van Witteloostuijn 2015), with a non-malleable correlational leg (PSM) and a treatable causal leg (affect). Hence, whilst interpreting our findings, we need to be cautious not to infer causality where our findings are essentially correlational.

Dependent variable: Social rule-breaking

To capture respondents' social rule-breaking intent (*SRB Intent*), we developed a three-item scale that serves as a measure of our main dependent variable. 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).[1] All of these items were Likert-type questions, with score options ranging from 1 (= 'absolutely disagree') to 5 (= 'absolutely agree'). The three items were standardized and sum-scored to form our main dependent variable *SRB Intent*.

We conducted confirmatory factor analyses (varimax rotated) to corroborate the validity of this aggregation procedure. Since five-point Likert scales are not continuous, the data were first transformed into a polychoric matrix upon which factor analyses were performed. Results (see Appendix A.3) confirm high internal validity and robustness against country effects. Shapiro-Wilk testing shows that *SRB 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: $W(310) = 0.989$, $p = 0.016$), thus allowing to estimate regression models. Furthermore, 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). Moreover, we

[1] Our questionnaire originally included a fourth item asking respondents to indicate whether they believed that breaking the rules presented in the vignette case involved a mistake. However, factor analysis revealed that this reverse item did not benefit the scale since its uniqueness values were too high, and because it was hardly inter-correlated with the other items.

added a fourth item (realism) as a manipulation check control variable, which is a four-point scale asking participants to assess each vignette from being 'very unrealistic' (1) to 'very realistic' (4).

Model estimation

All participants responded to two vignettes that were randomly assigned and drawn randomly from the set of three different vignettes.[2] Table 2 presents the effect sizes of the different vignette treatments. To estimate conditional contribution, we run linear regression analyses with heteroscedasticity-robust standard errors clustered at the individual respondent to test our hypotheses. In the expectation of a linear relation between *SRB Intent* and contextual factors such as treatment, explicit motives for rule-breaking (perceived client's benefit and agency's loss), perceived realism, and potential country effects, on the one hand, and individual traits such as PSM and risk aversion, on the other hand, we specify our model as

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

We use the neutral vignette scenario as a reference category for the treatment effects. In the following section, 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). The table in Appendix A.2 shows the correlation matrix between all dependent and control variables, as well as respective reliabilities at the five per cent level. The results of the regression analyses are presented in Table 3.[3]

[2] Appendix A.4, available as online material, provides the results of extensive post-hoc analyses to control for order and spill-over effects potentially resulting from randomization-based latent secondary treatment-clusters between respondents. Results show that the current experimental setup and procedure were robust, and that procedure-based order and spill-over effects were not an important issue.

[3] Appendix A.5, available as online material, provides additional post-hoc analyses exploring potential interaction effects between *PSM* and treatments. Results further substantiate the findings of the direct effects

All steps of the analysis have also been conducted with *PSM* split into its four underlying dimensions (results available upon request). However, this decreased the explanatory power in comparison to using *PSM* as the compound multi-dimensional construct as originally conceptualized by Perry and Wise (1990). Since the effect of each individual dimension of *PSM* is not the main concern of this study, we decided to follow the many recent examples of, for instance, Vandenabeele, Ritz, and Neumann (2018), van Loon, Vandenabeele, and Leisink (2015), and Schott and Ritz (2017), who all argue in favor of a unidimensional conception of *PSM*, and use *PSM* in the way originally intended by Perry and Wise (1990) and validated by Kim (2011) as a compound scale measure.

FINDINGS

Study 1

The data of study 1 were collected through a standing online panel of a large German university. The final sample comprises data of $n = 211$ respondents who are, on average, 25.8 ($SD = 4.8$) years old. The sample is slightly dominated by female participants (55.0%) and consists of undergraduate and graduate 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 scored relatively high on Kim's (2011) *PSM* scale ($M = 5.26$, $SD = 0.98$) 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 *SRB Intent.* The descriptive analysis of the treatment effects on *SRB Intent* is presented in Table 2.

model and, furthermore, point toward a small but substantial interaction effect between *PSM* and *SRB Intent* in the negative treatment condition.

[Please insert Table 2 about here]

Tested against the neutral treatment (Vignette 2: $M = 2.64$, $SD = 0.87$), we find that 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, thus 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 *SRB Intent* than the positive treatment ($d = 0.611$) has on increasing *SRB Intent* (see Figure 1).

[Please insert Figure 1 about here]

Likewise, we find a strong and significant linear main effect of treatment on *SRB Intent* (negative treatment: $\beta_2 = -0.224$, $p = 0.020$; positive treatment: $\beta_3 = 0.313$, $p = 0.002$) with linear regression modelling (see Study 1 in Table 3). The model is well specified [$F_1(9, 193) = 26.47$, $p = 0.000$] and, in the context of an (quasi-)experiment in the social sciences, explains a relatively large share of variance (adj. $R^2_1 = 0.370$). The main association of *PSM* with *SRB Intent* is negative, but not statistically significant ($\beta_1 = -0.023$, $p = 0.599$), providing no support for *H1*.

[Please insert Table 3 about here]

Regarding respondents' explicit motives for SRB, we find that consideration of the client's interest is not significantly associated with *SRB Intent* ($\beta_4 = -0.037$, $p = 0.384$). However, surprisingly, assuming that breaking the rules will result in adverse effects for the public agency actually increases *SRB Intent* ($\beta_5 = 0.272$, $p = 0.000$). Lastly, we do not find a significant gender estimate, and only a small but significant age effect ($\beta_8 = 0.023$, $p = 0.039$) but – as

expected – risk aversion is strongly negatively and significantly related with *SRB Intent* (β_7 = -0.224, p = 0.032), which means that risk-averse individuals are less likely to engage in SRB.

Study 2

Study 2 was conducted at a Flemish university in Belgium. The sample comprises data of n = 220 participants who predominantly study business administration (46.8%), industrial engineering and management (24.1%), and socioeconomics and economic policy (10.0%). The sample is slightly dominated by female respondents (51.4%). Respondents are slightly younger (M = 21.1 years, SD = 2.8) than the sample of Study 1. The Belgian sample reports relatively high scores of *PSM* (M = 5.53, SD = 0.85) and is predominantly risk-averse (M = 1.57, SD = 0.63).

The data of Study 2 mostly corresponds with the findings from 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 (see Table 2 and Figure 1). These results strongly support *H2a* and *H2b*. Linear regression analysis (see Study 2 in Table 3) supports the descriptive analysis and relies on a well-specified model [F_{II} (9, 191) = 32.49, p = 0.000], explaining a significant share of the variance (adj. R^2_{II} = 0.400). The findings reveal a positive but statistically non-significant relation between high *PSM* and *SRB Intent* (β_1 = 0.052, p = 0.303). Consequently, the data of Study 2 provides only indicative sign support for *H1*, at best. Regarding respondents' explicit motives for SRB, we find that consideration of the client's interest does not influence *SRB Intent* (β_4 = -0.089, p = 0.066). However, again, being aware that breaking the rules will result in public agency harm significantly increases *SRB Intent* (β_5 = 0.393, p = 0.000). Lastly, we do not find a significant association of individual risk preferences, age, or gender with *SRB Intent*.

Study 3

The data of Study 3 are from two universities in the Netherlands. The sample comprises data of n = 193 respondents who are, on average, 22.5 (SD = 3.7) years old. The dataset features a slight overrepresentation of female respondents (51.8%). Participants are students of a number of social sciences degree programs, with the majority in business administration (36.1%) and economic policy (31.3%). They report high levels of *PSM* (M = 5.38, SD = 0.92) and are rather risk averse (M = 0.96, SD = 0.61).

In line with the results of Study 2, high PSM is positively associated with higher *SRB Intent* ($\beta_1 = 0.047$, $p = 0.239$), providing sign-indicative but non-significant support for *H1*. Regarding the effect of client-based information cues, the findings mostly correspond with those from 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 (see Table 2 and Figure 1). Linear regression analysis further substantiates this asymmetric treatment effect (see Study 3 in 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 *SRB Intent* (β_2 = -0.106, p = 0.242), and a significantly larger and positive relation between the positive treatment and *SRB Intent* (β_3 = 0.285, p = 0.000). Both analyses provide support for *H2a* and *H2b*. In contrast to Studies 1 and 2, the perception that SRB would benefit the client has a small but only indicative positive association with *SRB Intent* ($\beta_4 = 0.080$, $p = 0.081$), while agency harm is strongly significantly and positively related with *SRB Intent* (β_5 = 0.453, p = 0.000). In this sample, female participants reveal significantly lower *SRB Intent* (β_8 = -0.139, p = 0.013), but a significant coefficient for age or risk preferences cannot be observed.

Pooled data

Pooling the data of the three country samples (*Obs.* = 1,239) for clustered regression analysis (see Table 3) does not provide further evidence confirming a positive association between *PSM* and *SRB Intent* ($\beta_1 = 0.028$, $p = 0.281$), thus not supporting *H1*. The model (see Pooled data in Table 3) is well specified [$F_{IV}(9, 1{,}239) = 66.67$, $p = 0.000$] and explains a significant share of the variance (adj. $R^2_{IV} = 0.376$).

[Please insert Figure 2 about here]

We find that treatment with positive information cues has a strong direct positive effect on *SRB Intent* ($\beta_3 = 0.310$, $p = 0.000$), and that negative treatment results in a complementary but asymmetrically larger negative effect on *SRB Intent* ($\beta_2 = -0.129$, $p = 0.009$), providing further support for *H2*. The marginal effects plot reveals a substantive asymmetric moderation effect of treatment on the relation between *PSM* and *SRB Intent* (see Figure 2; further exploration in Appendix A.5). A first threshold (A) is reached between the negative and neutral vignette. In this case, 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 indiscriminant, as indicated by the intersection of the confidence intervals. Furthermore, public agency harm has a significantly positive association with *SRB Intent* ($\beta_5 = 0.355$, $p = 0.000$), while the notion of acting on behalf of the client's benefit ($\beta_4 = -0.010$, $p = 0.714$) is not significantly associated with *SRB Intent*. The pooled sample reveals that the slight variations between the three country samples cannot be explained by country or culture-specific characteristics, but that they should be attributed to differences within the samples regarding, for instance, the small variances in age and gender distributions, as discussed above.

DISCUSSION

Dark horse

The empirical findings provide support for our central hypothesis that positive cues about the client do, probably due to triggering a feeling of sympathy, increase the likelihood of rule-breaking, with negative cues having a disproportionally larger adverse effect. These findings are in line with prior studies by Goodsell (1980; 1981), Weimann (1982), Scott (1997), Gino and Pierce (2009; 2010), and Christian and Alm (2014) that also indicate that positive affect toward clients will result in a higher likelihood of pro-social rule-breaking. In our study, the cross-national consistency and the large effect sizes across the three replications are substantial, emphasizing the crucial influence of client-based affect cues on the likelihood of SRB. In contrast, and as hypothesized, negative information cues about the client decrease the likelihood of SRB. 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 and procedures, lead the way to strong discrimination of these clients against other clients perceived as more amiable.

However, this effect is asymmetric in the sense that the negative cues have a stronger negative effect than the positive cues have a positive effect. This asymmetry relates to a well-researched psychological effect often 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 public management research. For instance, 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 perceptional 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.

As expected, risk aversion is negatively correlated with the likelihood of engaging in SRB behavior, but this association is only statistically significant for Study 1's German sample and the pooled data. This can be explained by country-specific differences between the samples, with Study 1 comprising a sample that is generally more risk-affine vis-à-vis the other two samples with larger variance in risk preferences between subjects. Consequently, it is hard to detect any statistically significant association of risk aversion with pro-social rule-breaking in these two samples. However, in all three samples, the association of experimentally revealed risk aversion with SRB 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 at the same time.

Furthermore, regarding the effect of PSM, we find indications for significant moderation between PSM and the positive or negative information cues provided about the client. The amplifying association of PSM with SRB is stable across all three replication studies in all three European countries, indicating that the effect is robust across Germany, Belgium, and the Netherlands. Furthermore, The discriminatory effect based on the client's information cues treatment only sets in when people pass a certain PSM threshold. This implies that people scoring low on PSM are not just less likely to engage in SRB in general, but that the biasing effect of affect toward clients also proves to be less substantial. As illustrated in Figure 2, the marginal effects of the three treatment conditions converged in two thresholds. This implies that individuals with high PSM react more strongly to the client-based information cues and, based on these, 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.

Our study contributes to the emerging discourse on the so-called dark sides of PSM. This paper should therefore also be considered as a direct empirical response to recent theoretical appeals in the research field. When developing their multi-level conceptual framework of the potential negative effects of PSM, Schott and Ritz (2017) proposed that people with high PSM are more likely to engage in SRB. Their primary argument is that people might find it easier to derive moral justification for their acts if they perceive that their rule-breaking serves (what they perceive as) a noble cause. The treatment effects observed in our study directly support this argument. The reasoning of Schott and Ritz (2017) is also consistent with the argument by Bolino and Grant (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. This finding is reflected in the large and positive correlation (0.48) between the perception of agency loss and the likelihood to engage in SRB, opposed to a much weaker correlation (0.09) between the motive of producing benefit for the client and SRB.

This is a peculiar finding further emphasizing the negative behavioral consequences of high PSM. Perhaps, a certain feeling of moral superiority makes justifying deviant behavior easier, taking the detrimental loss of bureaucratic efficiency for granted. In our study with three cross-country replications, we find that the prospect of the public agency's loss is a primary predictor of rule-breaking behavior. This anti-bureaucracy motive has an equally strong association with the likelihood of SRB behavior as have the client-specific information cues. Apparently, the act of SRB itself 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. Of course, future research is needed to find out whether

or not this finding is – notwithstanding its robustness across three replications – a false positive; and if not, what might be the underlying explanation.

Bureaucratic paradox

Our samples are all three composed of young adults without job experience in bureaucracies. What may our results imply for these bureaucracies? The origin of the term bureaucracy dates back to the 18th century. While the use of organized and consistent administrative systems was already quite common in ancient history, 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). According to Weber (1922), a bureaucracy comprises the following five key characteristics: (1) a formal hierarchical structure; (2) rules that allow decision-making to be executed consistently across the hierarchy; (3) organization by functional specialty; (4) an 'in-focused' mission; and (5) bureaucrats purposely acting impersonally to treat all employees and customers equally. Consequently, equity is the core principle of a bureaucracy (Weber 1922; Udy 1959; Warwick, Reed, and Maede 1975).

Indeed, an essential strength of a bureaucracy is assumed to be the non-discriminatory implementation of policy (Mills 1970). Ever since Weber's (1922) seminal analysis of the rationality of a well-functioning bureaucracy, this is a common assumption in the public administration and public management literatures (Udy 1959; Olsen 2006). 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, 2 & 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." So, 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, as already brilliantly argued by Downs (1957). Ever since Perry's (1996) introduction of the Public Service Motivation (PSM) construct, scholarship in public administration and public management argues that high-PSM people are attracted to (stay in) the public sector (Perry 1996; Bozeman and Su 2015; Vandenabeele and Skelcher 2015). This follows from the attraction-selection-attrition (ASA) model (Wright and Grant 2010) and homophily logic (McPherson 2001), convincingly arguing that groups of people reveal in-group similarities and out-group differences. For instance, Boone et al. (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. That is, 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, and Christensen, 2017), requiring further future studies.

Strikingly, we find that these young high-PSM people who might be more likely to end up in jobs in public bureaucracies, may also, ceteris paribus, be more likely to engage in discriminatory (pro-social) rule-breaking. At first sight, this would imply a paradox: 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 (pro-social) 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.

CONCLUSION

Our research contributes to making public managers and scholars aware of the potential dark sides of high PSM. In order to inhibit the adverse effect of high PSM on SRB, public organizations might want to follow long-term strategies with the goal of creating awareness of the critical egalitarian principle that lies at the heart of their bureaucracy. If (high-PSM) bureaucrats internalize that rules exist for a positive reason, which is to ensure equal treatment for every client, and that each client is equally eligible to public service provision irrespective of how much s/he appeals to the individual bureaucrat affectively, moral justification for SRB disappears. By appealing to morality and providing information about the underlying reasons for bureaucratic processes, and (possibly) also about the deceiving effects of irrelevant informational cues, bureaucracies can aim to foster intrinsic resistance to SRB in their employees. Given this study's evidence, we assume that this more subtle and long-term oriented educational approach is much more promising in fostering compliance than stressing extrinsic motivational incentives in the form of punishing rule-breaking, because the prospect of punishment for pro-social non-compliance with the rules of the bureaucracy could be interpreted as an indicator that it is even more noble to rebel against this "inhumane" bureaucracy.

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. Thus, the current study provides a glimpse into the behavior of the key focus group of public sector recruitment candidates. 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 et al. 2006). Third, the two-out-of-three randomization approach of the vignettes in the experiment might have caused procedural cluster-based artefacts, which potentially influence the main effect of PSM on SRB. However, additional robustness checks (see Appendix A.4 in the additional online material) showed that these effects were very limited and did not confound the main effects observed, thus underlining the validity of the randomization approach and the findings.

Fourth, this study only investigated the relation of PSM on pro-social forms of rule-breaking. We assume that PSM might also play a role regarding the likelihood of anti-social forms of rule-breaking, for instance in cases when high-PSM bureaucrats actively block clients from accessing public services because they perceive these clients as undeserving. Moreover, 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, the study calls for further replication in other countries in which the cultural perception of rule-breaking is more diverse than between the three European cultures included in the current study. In this

way, 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 SRB. Second, future studies could explore even further the effect of PSM as a necessary condition with distinct thresholds in discriminatory SRB behavior by systematically manipulating the client information cues provided. Choice-based conjoint analyses on a diverse set of clients and also bureaucrat characteristics such as age, gender, social status, religious beliefs (to name just a few possible examples) 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 SRB behavior to further explore the behavioral paradox of modern public sector bureaucracies.

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TABLE 1: Socio-demographic characteristics of respondents

	Study 1	**Study 2**	**Study 3**
Sampling site	Germany	Belgium	The Netherlands
n	211	220	193
Obs.	315	322	219
Experimental treatment (*Obs.*)[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 (*n*)[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 (*n*)			
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 either 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 *SRB Intent* by study

			Treatment effect[a]		
SRB Intent	**Mean**	**SD**	***t***	***p***	***d***
Study 1 (GER)					
Negative treatment	1.79	.77	-6.98	.000	-1.026
Neutral treatment	2.64	.87	*– reference category –*		
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	*– reference category –*		
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	*– reference category –*		
Positive treatment	2.73	.87	2.99	.003	.422

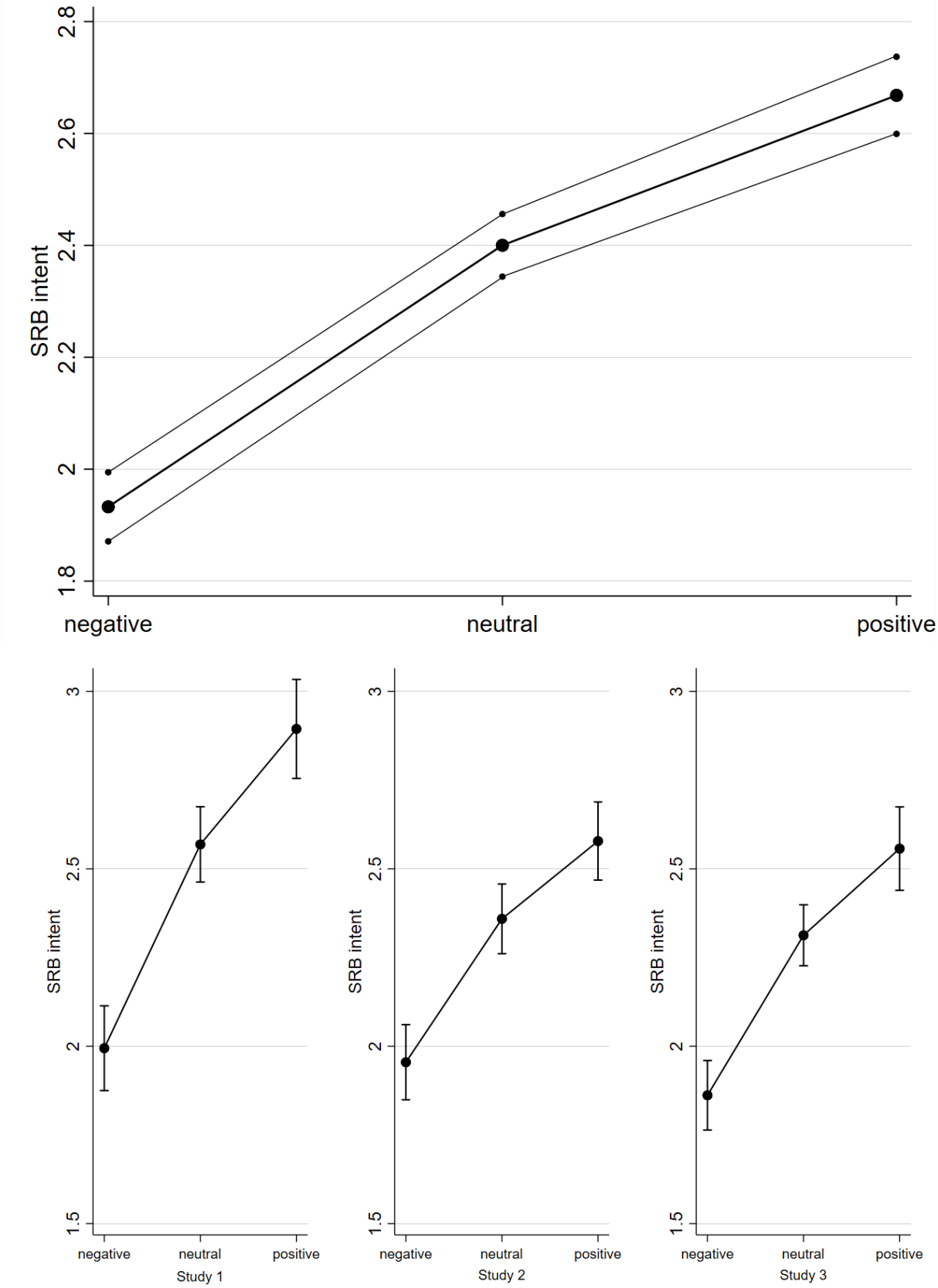
Notes: Values range: 1 = 'very low' to 5 = 'very high'. [a] Tested against vignette 2 ("neutral") with two-tailed *t*-tests; effect sizes estimated with Cohen's *d*-score (Welch-adjusted).

TABLE 3: Regression on *SRB Intent*

	Study 1		***Study 2***		***Study 3***		***Pooled data***	
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)
Observations	386		384		397		1,239	
F	26.47***		32.49***		31.48***		66.67***	
VIF[a]	1.14		1.09		1.11		1.25	
R^2	.384		.414		.456		.382	
Adj. R^2	.370		.400		.443		.376	

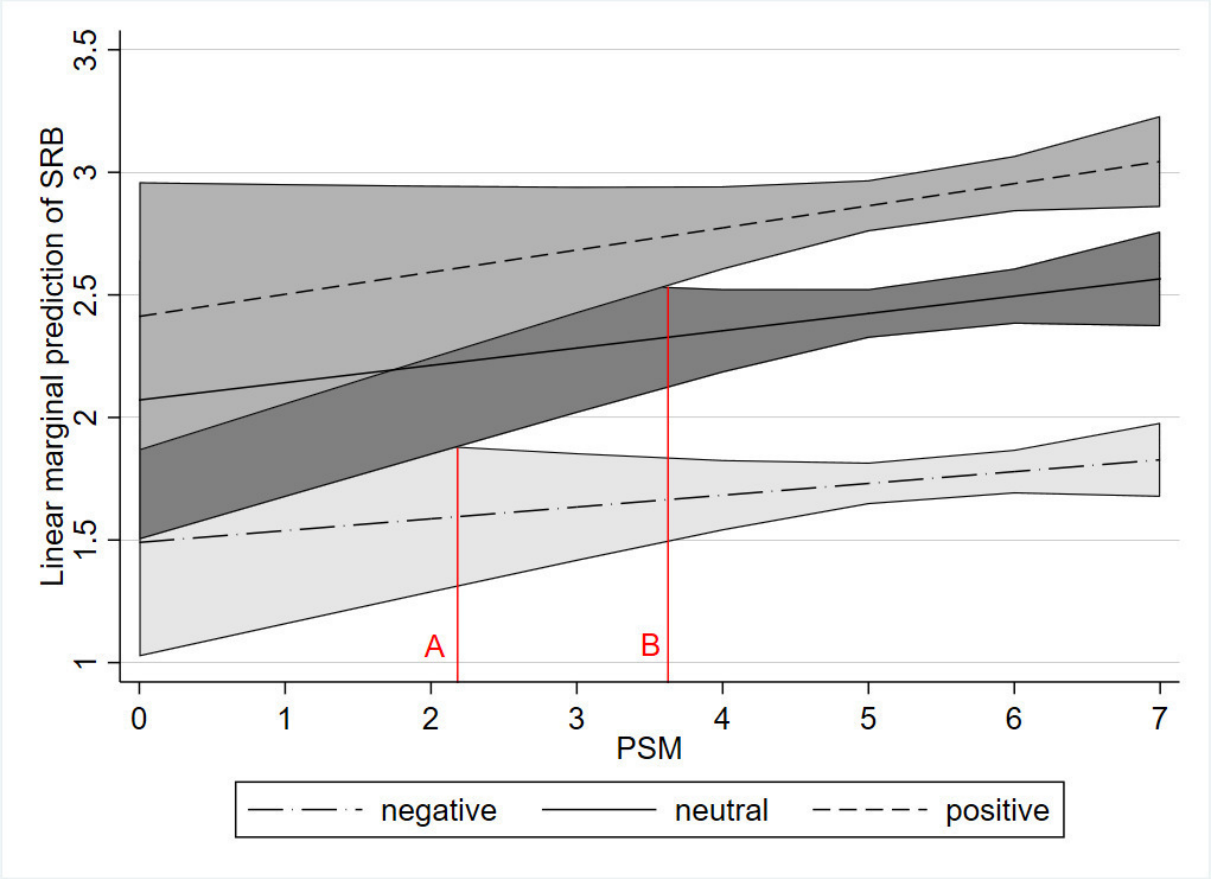
Notes: Linear regression estimates clustered at subject level for conditional contribution; heteroscedasticity-robust standard errors in parentheses; † $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. [a] Mean variance inflation factor (*VIF*): all $VIF \leq 1.99$.

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.

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** - Year of birth - Gender - Nationality - Field of study
3	**PSM-scale (Kim 2011)**
4	**Probability discounting task (Madden et al. 2009)**
5	**Introduction to social rule-breaking scenarios [all study participants]:** '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. One client, John, asks you to prioritize his application form. 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. Although you will not have any personal gain when prioritizing this application, you 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. What would you do in the following two situations?'
6	**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: 'The following statements relate to the preceding scenario. Please indicate to what extent you agree with the following statements: 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	**Negative treatment: "Former IS-fighter"** 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. Therefore, he makes an appointment with you to discuss his application. After the appointment John asks you to prioritize his application.
	B	**Neutral treatment: "Male client"** 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.
	C	**Positive treatment: "Disabled single father with three children"** You receive an urgent application form from John. John is a single father with three children and has a physical disability (wheelchair patient). 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.
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. SRB 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 Details of 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, and indicate 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, which is a prerequisite for factor analysis. The significant *Chi²*-testing results of Bartlett's test (*Chi²* (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 *SRB Intent* with its three components.

Item uniqueness (*U*) is usually regarded as 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, Henry 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	*U*	KMO	Factor 1	*U*	KMO	Factor 1	*U*	KMO	Factor 1	*U*	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 *Chi*² (3)	182.47			131.71			163.57			473.46		
p	.000			.000			.000			.000		
Cronbach's α	.839			.784			.809			.803		
Neutral Treatment												
Factor item	Factor 1	*U*	KMO	Factor 1	*U*	KMO	Factor 1	*U*	KMO	Factor 1	*U*	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 *Chi*² (3)	163.93			79.47			181.81			405.69		
p	.000			.000			.000			.000		
Cronbach's α	.800			.709			.836			.791		
Positive Treatment												
Factor item	Factor 1	*U*	KMO	Factor 1	*U*	KMO	Factor 1	*U*	KMO	Factor 1	*U*	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 *Chi*² (3)	100.61			82.65			118.34			315.13		
p	.000			.000			.000			.000		
Cronbach's α	.748			.722			.789			.762		

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

[Additional online material]

A.4 Additional analysis on order 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 order 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 *SRB 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 *SRB 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 SRB 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 *SRB Intent* by treatment cluster

SRB Intent		**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; *SRB Intent* values range: 1 = 'very low' to 5 = 'very high'.

Mean comparison analysis reveals that cluster-based order 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 *SRB 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 *SRB Intent*

SRB Intent		***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 *SRB Intent* (see Table A.4.2) reveals that receiving the neutral and negative treatment cluster (*C1*) has the same effect on *SRB 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 order 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 *SRB Intent*. Consequently, the latent cluster analysis does not indicate that the randomization procedure created obtrusive artefacts based on order 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 *SRB 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 *SRB 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 *SRB Intent* is substantially smaller (C1: β_2 = 0.089, p = 0.148; C2: β_3 = 0.166, p = 0.008) than receiving a neutral and positive treatment (C3: β_4 = 0.342, p = 0.000). All other associations between the remaining independent variables and *SRB 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 order effects involuntarily induced by latent vignette clustering, and hence that order or spillover effects between vignettes were not an issue.

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

	Pooled data		
	β	***p***	***rob. SE***
Independent variable			
PSM	.028	.293	(.03)
Treatment effect			
C1: neutral & negative	.089	.148	(.06)
C2: negative & positive	.166**	.008	(.06)
C3: 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)
Obs.			1,239
F			52.56***
VIF[a]			1.25
R^2			.359
Adj. R^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 *** $p < 0.001$. [a] Mean 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 order 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 *SRB Intent*, we conducted additional post-hoc analyses exploring the potential interaction effects between *PSM* and treatments. In the expectation of a linear relation between *SRB Intent* and the experimental variables, as well as controls, we specify our direct effects model (Model I) as

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

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

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

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: β_{II5} = -0.040, p = 0.713; positive: β_{II6} = -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 *SRB* throughout all three country studies.

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

	Study 1				***Study 2***				***Study 3***				***Pooled data***			
	I		***II***		***I***		***II***		***I***		***II***		***I***		***II***	
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)
Observations		386		386		384		384		397		397		1,239		1,239
F		25.88***		21.99***		25.86***		20.69***		25.27***		21.81***		57.58***		49.94***
VIF[a]		1.18				1.11				1.13				1.28		
R^2		.430		.437		.414		.422		.449		.460		.404		.406
Adj. R^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 $VIF \leq 2.04$.