




The power of framing: The role of information provision in promoting whistleblowing

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Abstract

Whistleblowing policies are seldom effective in inducing civil servants to report misconduct. While current literature focusses more upon the identification of the chief factors that prevent witnesses from reporting, it overlooks potentially effective strategies to stimulate active behavior. In particular, it neglects the framing and impact of information provision. According to the prospect theory, information that frames the consequences of non-reporting as negative is more effective in enhancing the intention to report misconduct, as opposed to information that frames the consequences of reporting as positive. This study tested these propositions through an online survey experiment targeted at the civil servants of a major European city. We exposed participants to four different frames of economic and psychological consequences of reporting wrongdoing, in order to analyze the impact of various frames upon participants' reporting intentions. The results of this study confirm the relevance of the prospect theory and clearly indicate how the presentation of information affects active behavior.

Abstract

Le politiche sul whistleblowing raramente sono efficaci nello stimolare i dipendenti pubblici a segnalare comportamenti illeciti. La letteratura corrente si concentra infatti maggiormente sull'identificazione dei principali fattori che

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dissuadono i testimoni dal segnalare, trascurando strategie potenzialmente efficaci in grado di stimolarne un comportamento proattivo; in particolare, quelle relative all'impatto dell'erogazione di informazioni e del relativo *framing*. Secondo la teoria dei prospetti, inquadrare le conseguenze di una mancata segnalazione con un *framing* negativo è più efficace nello stimolare la propensione a segnalare illeciti rispetto ad un *framing* positivo. Questo studio ha testato queste ipotesi attraverso un approccio sperimentale, con un questionario online rivolto ai dipendenti pubblici di una grande città europea. Abbiamo esposto i partecipanti a quattro diversi *frames* relativi alle conseguenze economiche e psicologiche del segnalare illeciti, al fine di analizzare l'impatto di tali trattamenti sulla loro propensione a segnalare. I risultati confermano la rilevanza della teoria dei prospetti e indicano chiaramente come la modalità di presentazione delle informazioni possa incidere sul comportamento.

1 | INTRODUCTION

Whistleblowing has attracted much attention in the news media and in scholarly debates. Some whistleblowers have gained considerable fame. Among the most famous whistleblowers in history are Mark Felt or “Deep Throat” who revealed the Watergate scandal in 1972 and Edward Snowden who released extensive classified material on top-secret United States National Security Agency (NSA) programmes to *The Guardian* and *Washington Post*. Whistleblowers gain so much attention because their role is crucial not only from an ethical perspective but also for economic and preventive reasons (Association of Certified Fraud Examiners -ACFE-, 2018). Their roles as insiders allow them to have a “privileged” view of internal misconduct, which explains why they represent the most important source of detecting wrongdoing (Andon et al., 2018; Stikeleather, 2016).

From a scholarly perspective, literature in the field has classified the antecedents of whistleblowing, differentiating between individual and situational factors: placing the characteristics of the whistleblower, report recipient, and wrongdoer in the first category, and placing the characteristics of the wrongdoing and the organization in the second category (Mesmer-Magnus & Viswesvaran, 2005; Miceli et al., 2008). Existing studies have indicated that contextual variables such as organizational climate or situational variables such as seriousness and evidence of wrongdoing are relevant factors that contribute to reporting intentions (Culiberg & Mihelič, 2017; Lee & Xiao, 2018; Mesmer-Magnus & Viswesvaran, 2005).

Literature in the field has also shown interest in how whistleblowing can be fostered in public contexts; recent studies have analyzed the relevance of various factors vis-a-vis whistleblowing intentions to internally report. With regard to individual factors, attention has been devoted to public service motivation, either as a direct antecedent (Brewer & Selden, 1998; Caillier, 2017; Cho & Song, 2015) or as a mediating factor (for example, between gender and whistleblowing intentions: Prysmakova & Evans, 2022). In terms of organizational factors, studies have focussed

on the role of perceived organizational protection (Chordiya et al., 2020), transformational leadership (Caillier, 2015; Caillier & Sa, 2017), organizational structure and responsiveness to employee complaints (Lee, 2020), organizational and environmental factors (Kwon et al., 2021), as well as trust: both in leadership and organizational justice (Ugaddan & Park, 2018) and towards co-workers and managers (Taylor, 2018).

Although existing literature has provided important insights into the subject, a major gap is that almost no attention has been directed towards information provision and raising awareness about the importance of whistleblowing. This is noteworthy, since low levels of reporting could also depend on the fact that individuals who are likely to report do not do so, because they miss essential information about its relevance in concrete terms. Doberstein and Charbonneau's (2020) study concentrated on this aspect, by testing and proving how providing information about the number of disclosures received and resolved within the jurisdiction in the last year increases, in their case, public servant confidence in the whistleblowing regime. Other recent contributions have confirmed the relevance of this issue: among other factors, internal training (Cho & Song, 2015; Mannion et al., 2018) and knowledge of whistleblowing channels (Chang et al., 2017; Mannion et al., 2018) have been seen to enhance reporting intentions. Since higher transparency has been shown to generate greater policy support (Porumbescu et al., 2017), spreading information about whistleblowing-related aspects might affect bureaucrats' support for this activity and constitute an alternative instrument for reducing silence within organizations (Hassan et al., 2019).

Building upon the aforementioned insights, this study has examined how provision of information and framing strategies affect individuals' whistleblowing propensity (i.e., the intention to report). In order to test whether and how such information affects reporting propensity, we employed behavioral insights from the prospect theory (Kahneman & Tversky, 1979) in a survey-based experiment. Prospect theory has been known to have important behavioral effects (Kühberger, 1998). Yet, it has been scarcely tested in the public sector (see for exceptions: Baekgaard, 2017; Bellé et al., 2018; Roberts & Wernstedt, 2019) and in the whistleblowing context, although in non-public contexts (Boo et al., 2016; Chen et al., 2017; Oelrich, 2019).

According to the major assumptions and findings of previous studies, we should expect individuals to weigh losses and gains of the same magnitude differently. Previous studies have shown that this is true for citizens (Olsen, 2015), politicians (Linde & Vis, 2017), public employees and managers (Bellé et al., 2018), as well as emergency managers (Roberts & Wernstedt, 2019). Further, depending upon the domains, there has been clear evidence of the effects of various magnitudes and signs (for example, Baekgaard, 2017). Hence, further research is needed to clarify whether the prospect theory holds and can be applied concretely in the whistleblowing context as well. This is because it consists of a new public context and the category of civil servants involved (employees of a municipality) may involve heterogeneity in terms of individual characteristics and attitudes. The application of the prospect theory is particularly relevant in the context of the whistleblowing debate, as it shapes individuals' perceptions about expected costs and benefits, which is the exact evaluation process carried out by a misconduct witness, who evaluates the expected pros and cons of reporting versus non-reporting (for example, fear of retaliation, fear of being demoted or fired versus public acknowledgement, working in a better environment, career prospects).

Given the above context, the central question of this study was as follows: *what is the effect of information provision and framing on the intention of civil servants to report wrongdoing?*

This question has been answered by carrying out an online survey experiment on civil servants in Milan, one of the largest Italian cities with 14,647 civil servants and 1.4 million inhabitants. It is a major centre of the Italian and European economies, with a strong attitude towards digital transformation (Gasco-Hernandez, 2022). Further, the relevance of this city, when compared to the other major Italian cities, lies in its activeness regarding the whistleblowing phenomenon. For instance, it shares periodic updates with its employees, so as to increase their awareness about the current legislative framework and about the actual working of its reporting platform that was established in 2015 (Comune di Milano, 2020). As a result of these policies, the Municipality of Milan has an annual "whistleblowing reports/local public employees" ratio that is at least double of the other main Italian cities such as Rome, Turin, Naples, and Genova (Comune di Genova, 2020; Comune di Napoli, 2020; Comune di Roma, 2020; Comune di Torino, 2020).

An experimental design was chosen to test the assumptions underlying this study, as it offered the possibility of exploiting behavioral insights to infer causality among the processes under analysis, an approach that is widely recognized within public administration literature as well (Battaglio Jr et al., 2019; Grimmelikhuijsen et al., 2017). Using a questionnaire, we first randomized the delivery as well as framing of some information; next, we measured individual whistleblowing intentions through a scenario evaluation. All municipality civil servants who possessed an official work e-mail address received an invitation to participate in the survey and answer the questionnaire. We obtained a final sample consisting of 716 complete and valid answers.

By addressing our research question, this article contributes to various kinds of literature. From a behavioral perspective, it sheds light upon the impact of framing strategies on the concrete economic and psychological consequences of reporting, integrating the results of previous partial attempts in whistleblowing literature (see Chen et al., 2017, for an example in the private sector) and complementing previous studies on the relevance of communication cues in motivating bureaucrats towards achieving a certain outcome (Andersen & Jakobsen, 2017). It also integrates the debate on transparency policies (in particular at the municipality level; see Cucciniello et al., 2012), here identified as information diffusion processes aimed at tackling practical barriers, as existing literature is more focussed upon disclosure than framing (see, for instance, Piotrowski et al., 2019).

Regarding whistleblowing literature, this study provides causal evidence about scarcely analyzed factors, such as the potential impact of sensitive information diffusion. Further, it improves existing academic knowledge not only from a content perspective but also in terms of the methodological aspects, as it is one of the few contributions involving a large sample of civil servants in an experimental design (Miceli et al., 1999; Miceli & Near, 1989), thus enhancing internal (causal) validity along with the demand for external validity. In fact, although large-scale observational research already exists (e.g., Brewer & Selden, 1998; Caillier, 2017; Lee, 2020; Lee et al., 2021), just few of them contains experimental designs (for example, Doberstein & Charbonneau, 2020), thereby making it hard to draw conclusions in terms of causal inference. Given that among the different sectors, “government and public administration” is the third most affected by misconduct in absolute terms, and considering the aforementioned role of whistleblowers (ACFE, 2018), there is a crucial need for more evidence in the public sector in terms of direct causality.

This study has also developed a new measurement closer to real behavior, to account for limitations in measuring individual intentions versus concrete actions (see Awan et al., 2020, for discrepancies in the results of the relationship between Public Service Motivation -PSM- and prosocial behavior). Finally, our work contributes on the debate on how illicit activities are consolidated in local governments (Meza & Pérez-Chiqués, 2021), thus providing an instrument to fight corruption at the local level. Also, this study adds to the evidence about whistleblowing within public frameworks in the Italian context (Palumbo & Manna, 2019; Previtali & Cerchiello, 2018).

1.1 | Theoretical framework

1.1.1 | Whistleblowing as a prosocial behavior

The most widely accepted academic definition of whistleblowing describes it as “the disclosure by organisational members (former or current) of illegal, immoral or illegitimate practices under the control of their employers, to persons or organisations that may be able to effect action” (Near & Miceli, 1985, p. 4). Such a description is broad enough to include all the potential cases wherein whistleblowing can occur. However, it is important to note that the manner in which whistleblowers are defined (and protected through specific policies) in the local national legislations can vary significantly as per the country. In this regard, international institutions and organizations (e.g., Transparency International, European Union -EU-) are making strong efforts to overcome these variations and push national governments towards a homogenization of the definitions and protections provided to whistleblowers (for an example at the European level, see the EU Directive 1937/2019, which is being implemented within EU member states).

Whistleblowing can be either internal or external, depending on whether the witness of the misconduct decides to report it inside the organization (e.g., to a supervisor or dedicated platforms) or outside it (e.g., in media or to law enforcement). These options are not mutually exclusive, although individuals usually prefer internal over external channels (Nayir & Herzig, 2012) and decide to report outside of their working environment only when the internal channel has already proved to be ineffective (Nayir & Herzig, 2012; Near & Miceli, 1985; Near & Miceli, 2008; Oelrich & Erlebach, 2021), given also that external reporters experience retaliation more frequently with respect to internal whistleblowers (Rothschild & Miethe, 1999). This explains why several contributions, including this study, focus on internal reporting.

From a theoretical perspective, this study embraces the view of whistleblowing as a prosocial organizational behavior (Dozier & Miceli, 1985; Miceli et al., 2008), which is a widely accepted interpretation among public administration scholars too (e.g., Caillier, 2017; Lavena, 2016). According to this perspective, blowing the whistle is defined as a voluntary act “(1) performed by a member of an organisation; (2) directed toward an individual, group, or organisation with whom he or she interacts while carrying out his or her organisational role; and (3) performed with the intention of promoting the welfare of the individual, group, or organisation toward which it is directed” (Brief & Motowidlo, 1986, p. 711).

Further, while the decision to report wrongdoings is motivated by altruism and willingness to help the organization and society, it does not exclude egoistic calculations for self-gain (Dozier & Miceli, 1985; Su & Ni, 2018). Such a decision is not an immediate reaction to a witnessed misconduct, but the result of a thoughtful process composed of three main phases (Miceli et al., 2008).

In phase one, the individual who witnesses the “focal activity” assesses whether the act is perceived as questionable. If they feel it is so, they decide if they have the direct responsibility to report it. Second, the agent evaluates whether the behavior has not been reported yet for organizational–climate-related reasons. If this is the case, it could be considered as an indirect signal that the organization implicitly accepts that misconduct, which prevents the witness from sustaining the whistleblowing process and adds to the higher levels of demoralization that such a situation brings with it. If the observer feels that the misconduct has not been reported because, for instance, no one else could have witnessed it or it is very unusual, while, at the same time, acting could be potentially effective, phase three occurs. In this phase, the individual concretely decides what to do, assessing and weighing the costs and benefits for each potential scenario. As we aimed to test the potential role that increased information and its framing could play in shaping the individual's final decision (in our case, the intention to act, with respect to the actual behavior presented in the model), the study concentrates on the last stage.

Among scholars who have already shed light on the witnesses' costs and benefits evaluation, Gundlach et al. (2003, p. 112) presented it as a “subjectively rational decision process in which individuals exert cognitive energy to process information to determine the best course of action”. Elaborating on the same, Keil et al. (2010) proposed that individuals holistically weigh the perceived costs and benefits, and that such a process mediates the relationship between whistleblowing factors and intentions. Further, in their theoretical model, Dasgupta and Kesharwani (2010) considered how incentives, particularly financial rewards, can also influence the overall evaluation (Andon et al., 2018; Berger et al., 2017; Xu & Ziegenfuss, 2008). Nevertheless, this process is not “purely rational”, as it is also affected by agents' emotions (Gundlach et al., 2003; Jones et al., 2014) and other psychological factors (Potpiroon & Wongpreedee, 2021), such as the fear of retaliation from others in the organization (Graham, 1986; Ponemon, 1994), anger, or lack of self-esteem (Curtis, 2006).

1.1.2 | The role of information provision in the whistleblowing process

Given the wide array of factors that influence individual costs and benefits, this study has analyzed the role of information provision and of how such information is given. This is because public and private employees might share some common knowledge about a phenomenon; however, assuming that they possess complete information may be too limiting and may not hold in real-life contexts such as that of whistleblowing (e.g., Chen et al., 2017).

With regard to theories about the role of information processing in influencing individuals' behavior, the persuasion models particularly fit this context. According to them, external information processing can cause individuals to change their attitudes and/or behaviors (Bhattacharjee & Sanford, 2006), if the new information is powerful enough to let them re-examine prior beliefs. The concepts of credibility and powerfulness imply that both the content and the presentation of the message determine its overall effectiveness.

Existing whistleblowing literature has already shown how this could be the case while framing concrete incentives (rewards versus penalties; see Boo et al., 2016; Chen et al., 2017) or messages (Oelrich, 2019; Young, 2017). Regarding the latter, Young (2017) presented the two opposite framings as those that describe both the positive and negative consequences of engaging in the behavior that is the subject of the messages. Chen et al. (2017), elaborating on Mulder (2008), highlighted how framing can also bring about changes in the individuals' perception of the phenomenon. In fact, a negatively-framed message or action (for example, punishment for non-reporting) communicates that whistleblowing is a duty, whereas a reward leads to the belief that reporting is not mandatory or necessary.

This study aimed to test whether providing some pieces of information fostered individuals' positive attitudes towards reporting. Prior to the development of hypotheses, some attention had to be directed towards the content of the information that was going to be delivered. As mentioned in the introduction, the goal was to check the effectiveness of increasing the overall degree of awareness about the whistleblowing phenomenon. In particular, there was an emphasis on the information that we had spread regarding the concrete consequences for the witnesses of misconduct, framed either as costs if they decided not to report or benefits if they did report.

The choice of the aforementioned specific content can be explained from both academic and practical perspectives. In the first case, the delivery of arguments connecting the act of engaging or not engaging in a behavior with its consequences successfully motivates the potential whistleblower to act (Young, 2017). In more practical terms, civil servants are already informed by their organizations about other relevant aspects (such as how or what to report); however, information about the "why" is often missing. Low levels of reporting (and low propensity in general) could also be influenced by the fact that individuals who are likely to report lack some essential information about concrete relevance of reporting.

When individuals witness misconduct, they make an internal cost-benefit analysis of the economic and psychological consequences of reporting (Gundlach et al., 2003). While the "economic" consequences relate to productivity and resource-wastage issues due to wrongdoing, the "psychological" ones refer to the effects on the quality of the civil servants' working environment (Potipiroon & Wongpreedee, 2021). As the agents' evaluation compares both economic and psychological costs and benefits of reporting versus non-reporting, the consequences at the individual level are considered in the evaluation content. In line with Petty and Cacioppo (1986) as also Bhattacharjee and Sanford (2006), if this content is powerful enough to modify prior beliefs, it should positively affect the overall balance between the individual's perceived costs and benefits, by either lowering the costs or increasing the benefits. In line with Chen et al. (2017), we claimed the following:

Hypothesis 1. The reporting propensity will be higher for those who receive information about the consequences of reporting compared to those who do not receive such information.

According to the prospect theory, penalty-based incentives can be much more powerful than reward-based ones in shaping the individuals' behavior (Kahneman & Tversky, 1979; Tversky & Kahneman, 1981). Individuals do not always behave as rational economic agents, even when they must choose between two lotteries that are identical in terms of expected utility. Typical inconsistencies relate to the higher weight assigned to losses compared to gains of the same magnitude, or when they draw different conclusions depending on the framings of the same outcome (e.g., Tversky & Kahneman, 1981, 1989). Recent literature on prospect theory has also explored the impact of the theory when implemented in public contexts, thus identifying an overall consistency with Tversky and Kahneman's theory. Olsen (2015) showed how citizens perceive and evaluate public services differently, depending upon how

satisfaction measures have been framed, their negativity bias, their professional experience, and any prior exposure to satisfaction rates. Linde and Vis (2017) shifted their attention to politicians, as they might differ substantially from the general population, being a very selective group, which has specific attitudes towards risk and which faces decisions with uncertain outcomes on a regular basis. Their results indicated that politicians' behavior was in line with the prospect theory, although their deviations were somewhat smaller than those of others. More recently, Bellé et al. (2018) as well as Roberts and Wernstedt (2019) applied the prospect theory on public sector workers and managers. The first study replicated Tversky and Kahneman's (1981) original study, confirming that, both in the Asian disease framework and in another policy domain, public employees and managers are more risk-averse when policy outcomes are formulated as prospective gains and more risk-seeking when equivalent outcomes are presented as prospective losses. Roberts and Wernstedt (2019) analyzed the impact of prospect theory on county-level emergency managers, who are highly experienced in decision-making under conditions of risk and uncertainty. Also, in this case, there exists evidence of decisions being influenced by the same decision biases, sensitivity to framing, and heuristics in general public studies, even while making decisions in their areas of expertise. Further, managers appear more risk-averse when the outcomes of actions are framed as gains, rather than when equivalent outcomes are framed as losses.

Transposed to the whistleblowing context, we might expect that a message conveying the costs of non-reporting should increase the individual propensity to report, more than a message wherein gains from reporting are indicated. The findings of Chen et al. (2017) pointed in this direction, although they focussed on the private sector and only on economic incentives (financial rewards for reporting versus financial penalty for not reporting), excluding the psychological aspects behind the individuals' decisions. Further, the results of a study by Boo et al. (2016) concurred with the prospect theory's assumptions, indicating the joint impact of reward- and penalty-based incentives, as also the closeness to the wrongdoer (in terms of a working relationship). The study also highlighted how individuals preferred to avoid losses rather than acquire gains. Thus, it is possible to summarize the expectations in the following two hypotheses:

Hypothesis 2. Information highlighting economic costs leads to a higher propensity to report, with respect to information highlighting economic benefits.

Hypothesis 3. Information highlighting psychological costs leads to a higher propensity to report, with respect to information highlighting psychological benefits.

As both economic and psychological domains determine the internal decision-making process (Gundlach et al., 2003), we simultaneously tested the impact of the two pieces of information, in order to explore whether potential synergies existed between them. Nevertheless, we did not develop any hypothesis due to a lack of benchmarks, as no previous studies have tested the impact of their interaction.

2 | EXPERIMENTAL DESIGN

2.1 | Procedure

To test the aforementioned hypotheses, we randomly assigned participants to one of five conditions, that is, one control and four treatment groups, following a 2×2 factorial design for factors related to the treatments. The first factor highlighted economic consequences (expected costs or benefits), and the second highlighted the psychological ones (expected costs or benefits), both focusing on the individual dimension (see Table 1).

With regard to the economic treatment, we did not focus on direct monetary incentives to foster economic gains, but highlighted potential indirect gains (for example, lower taxes consequent to lower economic wastes for

TABLE 1 Schematization of the treatments received by each group.

		Economic framing	
		Positive	Negative
Psychological framing	Positive	T1	T3
	Negative	T2	T4

their organization and the society at large). This was done because, in Italy, public employees are not allowed to claim monetary gains for blowing the whistle (although this could be possible in other countries, such as the United States). All the participants received an e-mail invitation to participate, with a direct link to the Qualtrics survey. The complete structure of the survey is illustrated in Appendix A and synthesized in Figure 1, whereas the contents of the economic and psychological treatments are presented in Appendix B.

2.2 | Materials

The scenario for this study, which was inspired by real reports and was common for all participants, presented a case of absenteeism of a direct supervisor (Appendix C). The first reason behind this choice was that unjustified absence in the work environment is a very frequent type of misconduct in the Italian context and is spread across all levels, both among officials and lower-tier employees. This is confirmed by the interest in this phenomenon, both from an academic perspective (Cristofoli et al., 2011; Cucchiella et al., 2014; De Paola et al., 2014; Mastekaasa, 2020; Scoppa, 2010) and in terms of anecdotal evidence (e.g., Giuffrida, 2021). Further, readers belonging to varied socio-economic backgrounds and careers can identify closely with the scenario, providing more realistic responses in terms of the whistleblowing propensity, with respect to the exposition of misbehaviours specific to the accountancy world (as it typically happens in the whistleblowing literature). Regarding the potential fear of reporting a direct supervisor, the anonymity guaranteed by the Municipality of Milan not only on paper but also de facto (given the thousands of civil servants that work inside it) should not be a relevant issue in shaping individual behavior.

Another element that made absenteeism even more suitable for our purpose was the opacity of its perceived boundaries, although its definition and how it is treated have been clearly defined in the Italian legal system (Legislative Decrees, 165/2001 and 116/2016). Given the marked cultural heterogeneity that characterizes the Italian panorama, it is seen differently depending on the contexts, and its gradualness in terms of diffusion also influences its acceptability (Gino & Bazerman, 2009). Moreover, it is relevant how this phenomenon is framed in the Italian panorama. The wrongdoers are named *furbetti*, which means “cunning”, but ambiguously. This framing could help increase the ambiguity about how people may interpret this type of misconduct. A more serious scenario would have led to higher reports of whistleblowing (see Jones, 1991 and his moral intensity theory). However, if we had considered socially unaccepted misconduct, such as clear cases of corruption or sexual harassment (Near et al., 2004), it would have allowed respondents to claim that they would have certainly reported such behavior, at least for social desirability. To avoid potential social desirability biases emerging from reading something already reported by someone else, the survey text specified that no information about the authorities' decision was available, implicitly highlighting how it could also be the case that the behavior should not have been reported.

2.3 | Local framework (Italy and municipality of Milan)

From a legislative perspective, the current reference for the study has been the Italian law 179, released in 2017, which reinforced protections for whistleblowers originally introduced by law 190/2012. In particular, it guarantees

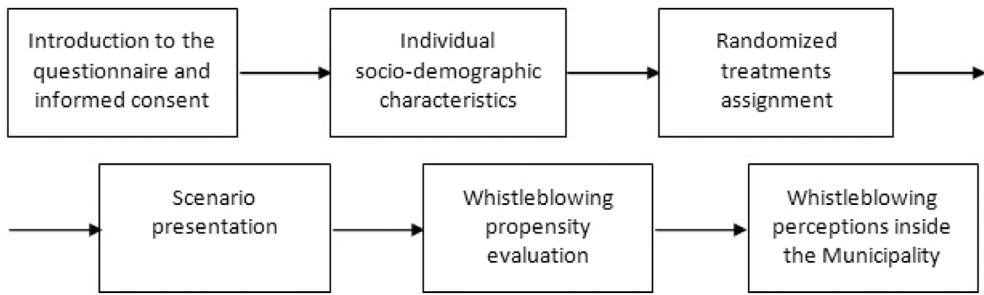


FIGURE 1 Flowchart of the experimental procedure.

protections from harmful procedures such as firing, demotion, retaliation, and other sanctions enforced by public organizations. For instance, if the whistleblower has been fired as a consequence of their report, they have to be reintegrated, and the responsibility of proving the correctness of the measure rests upon the public institution. This law also guarantees complete anonymity, except when the verification of the wrongdoing is based solely upon the whistleblower's deposition or when knowledge about the whistleblower's identity is fundamental to the wrongdoer's defense. All public administrations are expected to guarantee instruments to let civil servants report in an anonymous way; further, there exist other online platforms aimed at facilitating individual reporting in a safe and anonymous way (for example, the ones developed by Transparency International and the Anti-Corruption National Authority -ANAC-).

The Municipality of Milan publishes an annual online summary of all the reports received in the previous year (in an anonymised version), describing their nature, how they have been treated, as also whether any wrongdoer has been punished or not and on which basis (Comune di Milano, 2020). Also, the Municipality provides general information about the current legislative framework at a national level and about how its reporting platform works in concrete (for example, regarding anonymity and overall protection). Further, it periodically provides information about the whistleblowing phenomenon to all its employees, through their pay slips and professional development courses. Therefore, we assumed that the employees shared common knowledge about the overall phenomenon and about how it was managed inside their organization. This implied that Milanese civil servants already possessed the necessary background to report wrongdoing (as the treatments per se would not be sufficient to provide a general overview of the whistleblowing phenomenon).

2.4 | Data collection

The survey was delivered by e-mail to all the employees of Milan Municipality between April and June 2019 (over a period of 50 days, with a reminder after 20 days).¹ Unfortunately, the Municipality could not provide the exact number of employees who owned an institutional e-mail account, so it was not possible to compute response rates. According to their estimates, around half of the 14,647 civil servants of the Municipality would have received the e-mail invitation. The assignment of the individuals to a specific treatment occurred through a randomization process, so as to obtain balanced groups for each treatment. In total, 1073 civil servants participated in the survey; 298 responses had to be excluded because of incomplete data (abandonment of the survey before its completion), while 59 among the other respondents failed the attention checks. Thus, 716 questionnaires were completed and available for analysis.²

Regarding any potential ethics-related issues, several precautions were implemented before delivering the final version of the questionnaire to the respondents. First, the survey draft was repeatedly and adequately adapted according to the indications and suggestions of the local public managers, to guarantee both formal and substantial

anonymity (for example, removing the question about the birth province and clustering age in 5-year brackets). Subsequently, the final version was evaluated and approved by the ethical committee of Bocconi University.

Before starting to answer the questionnaire, respondents were required to provide their explicit informed consent to continue. Further, introductory statements underlined that their anonymity would be preserved, they could abandon the questionnaire at any time, and no punishments would be given in case of any missing or incomplete participation. No deceptions were included in the questionnaire, and no compensation was provided to the participants. The provision of economic rewards to Italian public employees is forbidden by law, and non-economic prizes would have led to potential biases in terms of participants interested in that compensation.

2.5 | Attention checks

As mentioned in the data collection subsection, two attention checks were included in the questionnaire, to minimize the risk of including subjects who did not pay attention to the text and had answered randomly. These checks were positioned in different parts of the survey and consisted of two questions with specific instructions about the supposed answers. Fifty-nine respondents did not comply with the requirements of either of the two questions and were excluded from the final sample.

2.6 | Dependent variable

One of the main issues in whistleblowing literature is the measurement of concrete individual behaviors in the case of individuals witnessing some misconduct in their working environments. In the absence of data about real whistleblowers (e.g., Merit System Protection Board datasets -MSPB-), previous experimental contributions have tested the respondents' self-declared attitudes or intentions. Our first dependent variable followed the same approach, departing from the standard five-option closed-ended question with increasing degrees of reporting intentions (see Appendix D), and considered reporting as a dichotomous decision. Particular attention was devoted to the framing of our dependent variable. We consciously avoided direct formulations such as "would you report?", as this would have already suggested to the respondents that the behavior was illicit. This could have led to answers biased by potential demand effect issues (Zizzo, 2010).

Nevertheless, although individual intentions predict actual behavior (Ajzen, 1991), use of such an approach typically suffers from the experimenter demand effect, with the respondents claiming to be classified as reporters even if they would not report misconduct in reality. Further, the five-option Likert scale transforms a dichotomous decision (report/not report) into a range of "n" items. There exist studies that have applied Ajzen's theory of planned behavior in the whistleblowing context (Brown et al., 2016; Park & Blenkinsopp, 2009; Rustiarini & Sunarsih, 2017). These studies have analyzed the relationship between whistleblowing intentions and behavior using sets of items that measured the phenomenon through Likert scales. In order to overcome these limitations, we developed an alternative approach and built a dependent variable that could capture reporting intentions more realistically.

Those who selected the highest level of concrete action on the question that measured the dependent variable (Appendix D) were then given the opportunity to write what they would have communicated in case they had witnessed that scenario in their working environment. This additional step allowed us to analyze the text characteristics and consequently identify specific features signaling the reliability of the reporter. For this purpose, through an exploratory stage, we codified the elements included in the reports, distinguishing between mere descriptions of the scenario (the expected task) and additional information regarding what pushed them to take the initiative. In a first phase, the answers provided have been separately analyzed and categorized by each author depending on the content of the reports; successively, we reviewed and agreed on those texts for which there was no unanimity on the categorization. Upon analyzing such non-requested information, once non-informative reports were excluded, the

only patterns measurable through objective lenses were attributable to prosocial dimensions (for example, no evidence was found about the relevance of social norms in the final decision-making stage). All motivations were in line with the fact that whistleblowing was a prosocial behavior that could benefit the individual, the organization, and/or the society at large (Brief & Motowidlo, 1986; Dozier & Miceli, 1985; Miceli et al., 2008). Building on this, for our robustness checks, we applied a conservative definition of the term “whistleblower”, wherein only those who indicated the motivation that moved them to report were considered.³ The lack of a formal request about their motivations allowed us to overcome any potential demand effect issues (Zizzo, 2010). Although it could have provided further interesting insights, due to the small number of “whistleblowers” emerging from this new measure (47 individuals), we decided not to go further in-depth and define further measures, for example, distinguishing among those who focused their attention on the benefits at the individual, organizational, and societal levels.

2.7 | Other measures

Table 2 presents the major individual socio-demographic characteristics collected in the first part of the questionnaire, together with their measurement units and ranges. They were collected to provide an overview of the participants and to develop some inter-group balance checks. We also included them as covariates in the analysis for a further robustness check (see below). Risk aversion (see Appendix E) has been measured through a continuous variable that ranges from 0 to 10, in line with previous literature (Bonin et al., 2007; Dohmen et al., 2011; Dohmen & Falk, 2010; Dur & Zoutenbier, 2014, 2015; Pfeifer, 2011).

“Age” and “work experience” were clustered into brackets, as per the request of the Municipality of Milan, for privacy reasons. The presence of both “front-office” and “back-office” dummies was based upon the possibility of including and classifying those who had been characterized by a mix of both activities.

3 | RESULTS

Table 3 shows the magnitude of the respondents' main characteristics.

Unfortunately, available information about the individual characteristics of the overall population of Milanese civil servants is quite limited. Nevertheless the data at our disposal, which relates to the average age (50.27) and the proportion of females (0.35), suggests how our sample could be adequately representative.

Of the 716 individuals, 139 belonged to the control group, while the other 577 received one of the four versions of the treatment message. A Kruskal–Wallis one-way analysis of variance (Kruskal & Wallis, 1952) highlighted how

TABLE 2 Socio-demographic variables.

Variable	Characteristics
Sex	Dummy (0: male; 1: female)
Age	Individual age in years, clustered into brackets for privacy reasons
Education	Variables that range from 1 (less than high-school diploma) to 5 (Ph.D. or similar)
Job position	Dummy (0: employee; 1: manager)
Front office	Dummy (0: otherwise; 1: mainly front-office activities)
Back office	Dummy (0: otherwise; 1: mainly back-office activities)
General risk attitude	Individual attitude towards overall risk, from 0 to 10
Whistleblowing (WB) risk attitude	Individual attitude towards risk in the whistleblowing context, from 0 to 10

TABLE 3 Descriptive statistics.

Variable	Mean	Standard deviation	Minimum	Maximum	N
Sex	0.33	0.47	0	1	716
Age	50.42	8.64	27.5	65	716
Education	2.92	1.11	1	5	716
Job position	0.23	0.42	0	1	716
Front office	0.15	0.36	0	1	716
Back office	0.45	0.50	0	1	716
General risk attitude	7.01	2.35	0	10	716
WB risk attitude	6.85	2.36	0	10	716

TABLE 4 Reporters' distribution across groups.

Groups	N	Whistleblowers		Whistleblowers with prosocial motivations	
		%	Average report length	%	Average report length
Control	139	10.79	33.73 (33.17)	5.04	36.14 (35.63)
T1	149	11.41	33.71 (25.64)	6.04	38.67 (29.21)
T2	138	8.70	43.08 (45.03)	5.07	33.71 (36.66)
T3	144	11.81	36.00 (22.95)	5.56	35.00 (29.54)
T4	146	16.44	45.46 (49.06)	10.96	56.81 (56.28)
Total sample	716	11.87	38.81 (36.88)	6.56	43.11 (41.91)

Note: Standard deviations are given in parentheses. The results from this and all the following specifications are robust even when controlling for temporal fixed-effects (day, week, temporal distance from the reminder, and moment of the day) and individual socio-demographic characteristics. They are available in Appendix G.

the randomization process had worked properly and none of the groups differed in a statistically significant way for any of the socio-demographic controls (Appendix F).⁴

Table 4 provides some general information about the distribution across groups of whistleblowers (according to the classical and alternative measurements illustrated in the dependent variable subsection) and the relative average report length, considering the word count.

Interestingly, the percentage of whistleblowers among those who received the treatment T2 (positive economic framing and negative psychological framing) is the lowest one, even when compared with those who did not receive any piece of information at all. Nevertheless, such difference was not found to be statistically significant when the two groups were compared through a t-test analysis.

Of the 97 individuals who chose the last option in the closed-ended whistleblowing intentions, 85 included a report, and 47 provided some elements of prosociality, which corresponds to 6.6% of our final sample. This percentage is in line with percentages found in other research studies (Bashir et al., 2011; Lavena, 2016).

Other pieces of information, which were not strictly related to the experimental design but useful for acquiring a wider view of the Milanese context, referred to the questions asked in the last part of the survey (Appendix A, step 6). It was found that inter-group knowledge levels about how the whistleblowing phenomenon works were comparable. Overall, 56.15% of the respondents confirmed that they had received some information from the Municipality in

TABLE 5 Baseline Logit specification – Treated vs. non-treated individuals.

DV: Individual WB behavior	Coefficient	Standard error	Confidence	Intervals
Treatments (1 = treated)	0.132	0.302	−0.459	0.723
Constant	−2.112***	0.273	−2.648	−1.576

Note: Statistical significance: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. The results from this and all the following specifications are robust even when controlling for temporal fixed-effects (day, week, temporal distance from the reminder, and moment of the day) and individual socio-demographic characteristics. They are available in Appendix G. $N = 716$.

the past, ranging from 54.86% in group T3 to 56.85% in group T4. Group-level knowledge about the existence of an online reporting platform was comparable as well, with 59.08% of the total sample being aware of it and a group range that varied between 55.80% (group T2) and 63.89% (group T3).

Table 5 shows the baseline logit regression, which checks whether providing information had some effects. Our variable of interest was the “treatments dummy”, which was equal to one if the subjects received any of the four framings. The dependent variable considered those who had claimed that they would have immediately reported the witnessed scenario as reporters and provided a written report of the scenario as well (85 subjects).

Although positive and in line with the expectations derived from prospect theory, our variable of interest showed a small effect in terms of magnitude, with a large standard error. Thus, provision of information about concrete consequences for individuals seemed to be insufficient to stimulate active behavior. A potential explanation is that only 85 individuals were classified as whistleblowers (versus 631 non-whistleblowers), and this strong imbalance could have affected the precision of the estimates, as the overall effect seemed to be relatively low.

Concerning message framing, we expected that negatively-framed messages would be more effective than positively-framed ones in exposing a certain piece of information and influencing the reader's propensity towards whistleblowing. The value referring to the two pieces of information was 0 if presented as benefits from non-reporting, and 1 if presented as costs from reporting. Also, we expected a positive sign for both the dummies and their interactions. In this case, the analysis focused only on the treated individuals (excluding those who were allocated to the control group), which explains why the overall sample is smaller.

The results that emerged from this logit regression provided some interesting insights, as both the economic and psychological messages, taken alone, were in line with the prospect theory. When any of the two messages were framed negatively, their effect on the individual intentions was positive, although only the economic message showed statistical relevance. When both treatments were framed negatively, the interaction had a negative effect, but it was not significant and the overall effect was still positive. Analogously as before, the presence of only 70 whistleblowers spread across four groups could have impacted the precision of the estimates.

3.1 | Robustness check

In this subsection, we replicated the same analyses, implementing a more prudent definition of the term “whistleblower”. In line with the previous discussion, we restricted our pool of “reliable” reporters to those who explicitly showed prosocial motives in their reports. This decreased the pool of potential reporters from 85 to 47. Tables 6 and 7 replicate the logit regressions developed to test our hypotheses.

Upon comparing Table 7 with Table 5, it is seen that the coefficient is still not significant, although it has an increased magnitude. This confirmed that the message was not powerful enough to change the individuals' behavior towards reporting wrongdoings and thus Hypothesis 1 was rejected. The decrease in the constant magnitude could be interpreted as the decrease in the probability of reporting since, subsequently, the percentage of supposed-to-be reporters was lower.

TABLE 6 Baseline Logit specification – Impact of framed messages.

DV: Individual WB behavior	Coefficient	Standard error	Confidence	Intervals
Economic info (1 = neg. framing)	0.725*	0.376	−0.011	1.461
Psychological info (1 = neg. framing)	0.385	0.341	−0.284	1.054
Interaction Eco*Psy	−0.687	0.524	−1.713	0.340
Constant	−1.626***	0.223	−2.064	−1.188

Note: Statistical significance: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. $N = 577$.

TABLE 7 Treated vs. non-treated individuals (novel dependent variable).

DV: Individual WB behavior	Coefficient	Standard error	Confidence	Intervals
Treatments (1 = treated)	0.340	0.421	−0.485	1.165
Constant	−2.937***	0.388	−3.697	−2.177

Note: Statistical significance: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. $N = 716$.

TABLE 8 Impact of framed messages (novel dependent variable).

DV: Individual WB behavior	Coefficient	Standard error	Confidence	Intervals
Economic info (1 = neg. framing)	0.834*	0.470	−0.086	1.755
Psychological info (1 = neg. framing)	0.738	0.450	−0.144	1.620
Interaction Eco*Psy	−0.923	0.687	−2.269	0.422
Constant	−2.095***	0.265	−2.614	−1.576

Note: Statistical significance: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. $N = 577$.

The comparability of the coefficients was confirmed when we replicated the analysis for Hypotheses 2 and 3 (Table 8). Further, they were still in line with the direction hypothesized by the prospect theory. This is because, though we would have expected a positive sign for the interaction term, the magnitude of the three was such that when both messages were framed negatively, the overall effect was still positive.

4 | DISCUSSION AND CONCLUSION

This study has analyzed the role of provision of further information to civil servants as an instrument for modifying their attitude towards signaling wrongdoing, particularly when comparing the potential gains and losses following a report. It also exploited the respondents' prosocial motivations to develop an alternative procedure to measure the dependent variable, attempting to tackle some of the typical measurement limitations and move from individual "intentions" towards whistleblowing "behavior".

Overall, the information provided regarding the consequences of (not) reporting misconduct did not seem to influence the reporting of intentions. Although there are no reasons to doubt the genuineness of these null findings, in principle, we cannot exclude how they could have also been influenced by some potential limitations. For instance, there could have been a lack of novelty for the respondents. If they were already aware of the consequences that they would face if they reported or did not report misconduct, they would have probably internalized such information in the past and, subsequently, the treatment would have been a simple reminder. Another possible explanation concerns the powerfulness of the content (Bhattacharjee &

Sanford, 2006). Even if such information were novel for the participants, if they had not considered it relevant enough to modify the prior-held beliefs, their evaluation process would not be affected, leading to no changes in their attitude towards reporting. A further aspect is related to a lack of credibility in the provided message. Even in the case of a new and relevant piece of information, the absence of a credible source that delivers the message could negatively affect the power of the treatment. From this perspective, no references were indeed provided in the text of the treatments. Nevertheless, this was an informed decision, so as not to confuse the respondents with academic sources that could be difficult to interpret.⁵ Thus, although prospect theory was partially confirmed (in terms of sign, but not of significance), potential improvements in the future research agenda might consist of addressing any of the aforementioned critical points.

Further potential aspects that might limit the external validity of the results relate to the context under analysis and the pool of respondents, as well as the strong imbalance in the sample between whistleblowers and non-whistleblowers, which could have affected the precision of the estimates. Yet, such imbalance is in line with data on real reports available at both local and national levels. Regarding the Municipality of Milan, in 2019, 18 civil servants blew the whistle through its online platform. Considering that just a part of the overall 14,647 public employees may have witnessed some misconduct (while all the 716 participants were exposed to it), the number of whistleblowers in our study is an encouraging estimate about the potential number of civil servants who would be willing to report a misconduct if witnessed in a real-life scenario. At the national level, an important reference point can be found in the online platform provided by ANAC to signal irregularities at any tier in the Italian public sector. This platform, launched in 2014, has experienced an exponential increase in its use, from 125 reports in 2015 to 873 in 2019 (although 488 of them were dismissed).

The evidence that emerged while testing Hypotheses 2 and 3 offers some interesting insights. While the framing of the psychological message seemed to not have a statistically significant impact, it mattered how the economic one was presented, in line with the prospect theory assumptions about the expected impact of cost-based messages. These results were confirmed if we focused upon those who showed prosocial elements in their reports, suggesting that active reporters are more sensitive to the economic consequences presented as costs, and that our measure is a good departing point for further refinements and better/more realistic capturing of the phenomenon.

Our findings can be explained because a negatively framed message or action (for example, punishment for not reporting) communicates that whistleblowing is a duty, whereas a reward leads to the belief that reporting is not mandatory or necessary (Chen et al., 2017). Further, the same mechanism seems to apply while considering varied framings of information diffusion about the consequences of individual action or inaction. The significance of the economic framing could derive from the fact that economic aspects are more adaptable to numeric (and thus, quantifiable) expected gains and losses. This is in line with the lotteries implemented to test the assumptions of the prospect theory, rather than the psychological consequences, which are less adaptable to such lotteries.

Another point to be considered for correctly interpreting the evidence emerging from this study relates to the fact is that civil servants' behavior is not always completely rational, when it comes to evaluating the economic and psychological costs of reporting (e.g., Gundlach et al., 2003; Jones et al., 2014). Further, while the treatments focused on the impact of whistleblowing at the individual level, public employees could also be motivated by altruism and willingness to help society.

This study has made several theoretical contributions. First, this research study has contributed to the field of behavioral public administration (Grimmelikhuijsen et al., 2017). Prospect theory has been scarcely applied in the public-sector setting. We demonstrated that insights regarding loss-aversion (i.e., framing consequences negatively) apply even to a high-stakes setting such as whistleblowing. At the same time, our findings have given a nuance to the applicability of the prospect theory in this applied setting (cf. Baekgaard, 2017). We found that framing had the expected effect when presenting the economic consequences of whistleblowing, but not the psychological ones. Overall, this suggests that the prospect theory cannot be mechanically applied to every context and content. Our findings have also enriched the transparency literature, by building on

insights showing that information provision, as such, does not necessarily influence people's attitudes (e.g., Grimmelikhuijsen et al., 2020). The framing of internal government information matters, and such framing should be more strongly considered while investigating the effects of transparency policies on citizens' or employee's attitudes.

Second, we have contributed to the current debate in whistleblowing literature, by shedding light on how transparency and framing policies can influence individuals' propensity for whistleblowing. Particularly, we have widened the existing perspectives (Chen et al., 2017; Young, 2017) involving civil servants, a rarely considered category of employees. This is especially striking because of the consistent diffusion of misconduct within governmental institutions (ACFE, 2018). Also, there is a lack of published comparative literature depicting the actual irrelevance of distinguishing between private and public workers concerning whistleblowing antecedents.

In terms of practical implications, our research has emphasized how the prospect theory is relevant and how different framings can influence individuals' attitudes towards reporting wrongdoing. Human resources policies should take this into account while designing adequate tools and mechanisms to foster a culture of reporting (for example, information campaigns, periodic meetings). This is particularly relevant when we consider ethical issues, as a decision about whether or not to report misbehaviours may have a concrete impact on the witness, their colleagues, organization, and the society at large. Therefore, policy interventions should be framed according to the evidence emerging from this and earlier studies. This implies that such framing needs to be consistent, as a mix of positive and negative presentations of the whistleblowing phenomenon might confuse, be less convincing, and ultimately disincentivise civil servants from acting. As per this perspective, poorly framed information could lead to even worse outcomes than lack of information.

It is evident that policymakers should pay close attention to the information content, while acknowledging that civil servants might respond differently to the information provided. Hence, the main takeaway is that the shaping of economic-related information seems to be particularly relevant in influencing their final decisions, whereas this is not the case for psychological-related content. Thus, governments and public managers should concentrate their efforts upon the economic aspects and clarify them to civil servants, in order to foster their involvement in and compliance with policy interventions.

CONFLICT OF INTEREST STATEMENT

The authors have no conflict of interest to declare.

PEER REVIEW

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DATA AVAILABILITY STATEMENT

Data sharing not applicable.

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ENDNOTES

¹ The questionnaire was previously tested and discussed with Municipality managers and a small population with very heterogeneous backgrounds ($N = 22$), to collect feedback from different perspectives about: (1) the appropriateness of the questions, (2) the concerns about the privacy of the Municipality employees, and (3) the overall length of the survey.

- ² Clearly, the involvement of a single, although very large, municipality may lead to potential external validity concerns, given the absence of geographical (and cultural) heterogeneity.
- ³ We are fully aware of the fact that individuals may be moved by motives other than prosocial motives, but the absence of other measurable elements in the reports prevented us from developing further analyses and capturing additional potentially reliable reporters. Furthermore, this specification allowed us to identify how information and its framing shape individual prosociality, one of the main antecedents of whistleblowing.
- ⁴ Given that none of the socio-demographic characteristics were continuous variables but rather dichotomous (sex, job position, front-office, and back-office) or categorical (age and education), the usual one-way ANOVA test could not be run, as this would have violated the normality assumption. The Kruskal–Wallis one-way analysis of variance based on ranks was employed as it is a non-parametric method analogous to the standard one-way ANOVA, but it does not need the normal distribution of the residuals.
- ⁵ Unfortunately, the restrictions on the questionnaire length did not allow us to explore and identify which of these factors, if any, affected respondents' propensities for reporting.

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APPENDIX A

STRUCTURE OF THE QUESTIONNAIRE

1. Introduction to the questionnaire and informed consent
2. Individual socio-demographic characteristics
3. Randomized treatments assignment
4. Scenario presentation
5. Whistleblowing propensity evaluation
6. Whistleblowing perceptions inside the Municipality

APPENDIX B

TREATMENTS

Psychological treatments

Positive framing: Reporting an illicit behavior that you witness does not only represent a service to the community but also involves direct and concrete advantages for the reporter, in terms of higher productivity and a healthier, less frustrating and less stressing work environment, due to the restoration of legality.

Negative framing: Not reporting an illicit behavior that you witness does not only represent a missed service to the community but also involves direct and concrete disadvantages for the reporter, in terms of lower productivity and a less healthy, more frustrating and more stressing work environment, due to the maintenance of the status quo.

Economic treatments

Positive framing: In addition to that, each specific report contributes to decreasing the economic waste for the entire community. Due to the communications sent from its own public employees, some estimates show that in 2017 the Municipality of *** (name hidden for privacy reasons) had recovered its productivity by 3% and, due to the obtained resources, it did not have to increase the local taxes for an average amount of 44 euros per capita.

Negative framing: In addition to that, each missed report contributes to increasing the economic waste for the entire community. Due to the missed communications sent from its own public employees, some estimates show that in 2017 the Municipality of *** (name hidden for privacy reasons) had lost its productivity by 3% and, due to the wasted resources, it had to increase the local taxes for an average amount of 44 euro per capita.

APPENDIX C

SCENARIO

The supervisor of my office, Mr. XXX, often spends part of the morning at the YYY bar of ZZZ Square to have breakfast and talk to some friends, staying there a lot and arriving even 1 or 2 h after the opening of the offices that he supervises. Sometimes he arrives on time, but just to clock-in and go out a few minutes later.

Even when he is in the office, he often leaves with another colleague, inviting him to have a break with him at the vending machines during the moments of maximum confusion. I believe that this attitude seriously harms

my colleagues and me, as we are also forced to conduct front-office activities for them, precisely during the day's periods with the highest influx. In addition to the queues that are created, we often receive many complaints from citizens as we are forced to interrupt the procedures every time the presence of Mr. XXX is required.

APPENDIX D

SCENARIO EVALUATION (5-ITEM SCALE)

Imagine having directly witnessed these behaviors. Do you believe that any irregularities should be reported?

APPENDIX E

Risk aversion (0–10 scale) *Are you generally a person who is willing to take risks or do you try to avoid taking risks?* (Bonin et al., 2007; Dohmen et al., 2011; Dohmen & Falk, 2010; Dur & Zoutenbier, 2014, 2015; Pfeifer, 2011).

APPENDIX F

BALANCE CHECKS (KRUSKAL-WALLIS ONE-WAY ANALYSIS OF VARIANCE)

Variable	χ^2 (4)	p-value
Sex	1.551	0.818
Age	1.920	0.751
Education	2.292	0.682
Job position	2.135	0.711
Front office	0.778	0.941
Back office	3.997	0.406

APPENDIX G

COVARIATES INCLUSION FOR THE MAIN ANALYSES

Test of H1	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Treated	0.044 (0.311)	0.024 (0.318)	-0.028 (0.323)	0.134 (0.302)	0.042 (0.311)	0.024 (0.318)	-0.031 (0.323)
Self-reported behavior	✓		✓		✓		✓
Socio-demographics		✓	✓			✓	✓
Temporal Fixed-Effects				✓	✓	✓	✓
Constant	-2.990*** (0.338)	-7.239*** (1.276)	-6.953*** (1.297)	-2.092*** (0.285)	-2.959*** (0.349)	-7.220*** (1.280)	-6.913*** (1.301)
N	716	716	716	716	716	716	716

Note: Socio-demographics: Sex, age, education, job position, front_office, back_office, risk aversion. Temporal FE: Temporal distance from the reminder. Inclusion of alternative temporal FE (e.g., day, daytime, and week FE) and further combinations of covariates lead to similar results; they are available upon request.

Test of H2 and H3	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Economic information	0.732* (0.387)	0.705* (0.398)	0.726* (0.402)	0.727* (0.376)	0.734* (0.387)	0.709* (0.398)	0.728* (0.402)
Psychological information	0.518 (0.384)	0.518 (0.366)	0.617* (0.372)	0.386 (0.341)	0.518 (0.354)	0.524 (0.367)	0.619* (0.372)
Interaction Psy*Eco	-0.855 (0.540)	-0.778 (0.554)	-0.852 (0.563)	-0.688 (0.524)	-0.856 (0.540)	-0.785 (0.555)	-0.855 (0.563)
Self-reported behavior	✓		✓		✓		✓
Socio-demographics		✓	✓			✓	✓
Temporal FE				✓	✓	✓	✓
Constant	-2.567*** (0.316)	-7.189*** (1.466)	-6.959*** (1.493)	-1.634*** (0.240)	-2.582*** (0.331)	-7.215*** (1.468)	-6.975*** (1.496)
N	577	577	577	577	577	577	577

Note: Socio-demographics: Sex, age, education, job position, front_office, back_office, risk aversion. Temporal FE: Temporal distance from the reminder. Inclusion of alternative temporal FE (e.g., day, daytime, and week FE) and further combinations of covariates lead to similar results; they are available upon request.