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**Prospect Theory in Public Administration:
does it matter in the Whistleblowing context?**

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Introduction

1. General background

"Who's the person who gave the whistleblower the information? Because that's close to a spy. You know what we used to do in the old days when we were smart? Right? The spies and treason, we used to handle it a little differently than we do now." (Donald Trump, September 26th 2019)

Whistleblowing is the activity of reporting those illicit behaviors that take place in the working environment. From an academic perspective, the traditional definition traces back from the seminal paper by Near and Miceli (1985), in which they describe it as *"...the disclosure by organizational 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 and Miceli, 1985). Although such definition is taken from that stream of literature that analyzes the phenomenon and its determinants in the private sector, it has been widely applied also in the public sphere, due to its generalizability (e.g. Lavena, 2016; Exmeyer, 2018; Previtali and Cerchiello, 2018; Taylor, 2018; Ugaddan and Park, 2019 – just to cite the latest works in this field that specifically mention this work).

The origins of this definition can be interpreted as a signal of the great discrepancy of articles towards the private panorama; nevertheless, the study of the whistleblowing phenomenon is getting more and more attention also in Public Administration environments, as witnessed by the amount of contributions published in the last year in Public Administration journals. Taking as reference the aforementioned recent contributions, they can be clustered according to the gaps they aim at filling: the main determinants behind the whistleblowing choices (Lavena, 2016; Previtali and Cerchiello, 2018), the role of individuals' trust towards the superiors that they should contact in order to report (Taylor, 2018) and the impact

of procedural and organizational justice (Exmeyer, 2018; Ugaddan and Park, 2019).

The reason why the act of blowing the whistle has gained so much attention in the last decades (both in the private and public sector) lies on the fact that whistleblowers and their behavior can have a relevant and massive impact not only from an ethical point of view, but also from political and economic perspectives (i.e. wastes consequent to non reported misconducts). The most recent example of the effects on the political sphere is the scandal around the US President Donald Trump, and the impeachment process that he faced (and for which he has been acquitted by the US Senate) due to some leaks spread by an anonymous whistleblower. The Trump citation above gives a flavor about the complexity that surrounds the whistleblowing-related issues, in particular for what concerns themes like anonymity, protection from retaliation and individual safety.

From an economic point of view, whistleblowers' activity can be fundamental to prevent the further diffusion of illicit behaviors, which constitute very concrete wastes both in the public and private spheres: according to the Association of Certified Fraud Examiners (ACFE), firms annually lose on average the 5% of their revenues due to frauds; this amount corresponds to wastes of approximately 4 trillion dollars worldwide (ACFE, 2018). Such example gives an idea of the overall magnitude that the sum of illegal behaviors can have, if not reported.

At the light of such relevance, whistleblowing is seen worldwide as a fundamental instrument to tackle the diffusion of this wide range of illicit phenomena. The continuous evolution of the UE legislation in terms of laws and proposals is a fact (Transparency International Italia, 2018a; Oelrich, 2019), and constantly aims at stimulating whistleblowing activities, through an increase in whistleblower protections, higher confidentiality and anonymity and more certainties about the wrongdoers'

punishment. Italy is following this global path as well, with the last law released in December 2017 (L.179/2017).

Unfortunately, whistleblowing rates are still very low, which is the reason why scholars keep focusing on this phenomenon and on what could be further improved to let people report what they witness (e.g. analyzing the impact of specific determinants, moderating and/or mediating mechanisms, national laws and reporting channels).

Taking the Italian framework as example, in 2018 the ALAC (*Allerta Anti-Corruzione*) online platform provided by Transparency International registered just 152 reports at the national level (Transparency International Italia, 2018b); it is true that there exist also other platforms that public employees can exploit to report illicit behaviors, but also in those cases the reporting attitudes are quite critical: in 2019 the “most virtuous” municipality has been Milan, with just 20 reports (Municipality of Milan, 2020). This discrepancy between the huge legislative efforts and the poor results in terms of witnesses’ trust towards the whistleblowing instruments explains the academics’ active interest and their awareness about the need for further research, in order to understand what prevents people from reporting and what could be effective policies to change their behavior, and convince them to actively expose themselves and blow the whistle.

Traditionally, when scholars focus on the determinants behind the individuals’ choices about blowing the whistle, they rely on the categorization developed by Near and Miceli (1995) (with subsequent adaptations by, among others, Mesmer-Magnus and Viswevaran, 2005; Miceli et al., 2008; Vadera et al., 2009; Gao and Brink, 2017), which distinguishes between *individual* and *situational* variables. Further studies, like the aforementioned ones, reorganize the way these antecedents are presented, but in terms of content the included factors are almost the same. The choice of the specific approach developed by Near and Miceli

(1995) derives from its clarity and originality. Although the two families of determinants will be presented in further detail in Chapter 1, it is useful to briefly mention what they concretely refer to. In terms of *individual* aspects, they refer to the characteristics of the:

- whistleblower – demographics (age, sex, education, type of job, income), personality variables (locus of control), beliefs (ethical judgment) and other characteristics (job performance, job satisfaction, organizational commitment);
- report recipient – its credibility and power, as individuals consider if the reporting channel has the instruments and the capability to effectively deal with the reports and if its past behavior has been successful enough to be trusted;
- wrongdoer – personal characteristics (as those mentioned for the first point) or the relationship between whistleblower and wrongdoer (the degree of likeability or closeness among the two).

At the other side, the *situational* variables are classified according to the characteristics of the:

- wrongdoing – type of misconduct, its perceived severity and its evidence;
- organization – supervisor and coworker support, the organizational justice and climate, the threat of retaliation and size of organization.

Although very schematic and easily applicable, one limit of such clustering is that it does not consider the potential role of information and, specifically, the fact that individuals may not share the same degree of knowledge about all the elements that could influence their attitude towards reporting a certain misconduct. With respect to the aforementioned families of determinants and their relevance, the role of information and its impact is at another level because its scarcity or uneven distribution across the interested individuals can refer to almost all the five categories. Typical cases relate to aspects like the rights and protections dedicated to the whistleblowers at a national and

organizational level, how reporting procedures work, what should be reported and so on. In fact, although the classical hypotheses of perfect information and/or common knowledge are often taken for granted, bounded rationality theories show how actually they do not always hold (e.g. Simon, 1972); in the whistleblowing context, still a few contributions already showed how disclosing these types of information can have relevant outcomes in terms of individuals' behaviors (Kaplan et al., 2012; Zhang et al., 2013; Wainberg and Perreault, 2016).

In addition to that, in order to fully gain insights about what makes individuals willing to report, another stream of literature that has to be included refers to psychology and all those aspects that relate to the subjective perceptions of a certain phenomenon. Applied to the information provision framework, many psychology theories (e.g. Cognitive Theory, Prospect Theory, Elaboration Likelihood Model) already showed that the same message could provoke very different individual responses depending on how it has been framed and perceived; as the attitude towards a phenomenon actively changes as individuals increase their awareness about it (Eagly and Chaiken, 1993), including these frameworks is necessary to give light and better interpret the processes behind the whistleblowing decision.

In concrete terms, this lack of individual knowledge about how the whistleblowing process works in its entirety affects the potential reporters' decision through their limited trust towards their institution and reporting channel; in a scenario characterized by limited information, and consequently by higher uncertainty, individuals tend to be more risk averse and in turn overestimate bad outcomes (e.g. the probability of suffer retaliation or lose their job if they actively witness cases of misconducts).

The aim of my agenda –in broader terms and considering also potential future research– is to increase the understanding about whistleblowing

determinants in the Public Administration context, taking into account the aforementioned psychological framework. The role of behavioral features has already been introduced in the whistleblowing literature, also through experimental approaches: the main mechanisms under analysis relate to the impact of *ethical behavior* of supervisors (Smith et al., 2001; Bhal and Dadhich, 2011; Mayer et al., 2013) and colleagues (Mayer et al., 2013; Choo et al., 2019), the role of *monetary incentives* (e.g. Xu and Ziegenfuss, 2008; Gino and Bazerman, 2009; Oh and Teo, 2010; Brink et al., 2013; Stikeleather, 2016; Guthrie and Taylor, 2017; Andon et al., 2018; Lee et al., 2018), *other incentives* (Boo et al., 2016) and *how they are framed* (Chen et al., 2017), how *messages* are presented (Young, 2017) and how whistleblower's *risk attitude* (Oelrich, 2019) and *trust on the reporting system* (Lowry et al., 2013) may be relevant.

Going more in detail with the aim of the thesis, the objective is to test the role of how information is provided in terms of its framing, in order to understand if only the content matters or also its presentation, at the light of the hypotheses and findings of the Prospect Theory (e.g. Kahneman and Tversky, 1979; Tversky and Kahneman, 1981; Tversky and Kahneman, 1992). With respect to other approaches of nudging public sector employees, Prospect Theory provides a more complete and universal framework (although it may not always hold in a Public Administration context; e.g. Baekgaard, 2017). If we consider, for instance, social norm theories as reference, the main issue would relate to the fact that social norms applied to the whistleblowing phenomenon vary a lot across nations, in particular depending on how the reporting process has been defined from a legislative perspective: in some contexts the act of reporting is presented as a duty, and individuals who witness some misconducts and do not report them may theoretically be punished; in other cases, reporting wrongdoing is totally up to the potential whistleblower and then it is considered a plus with respect to her task. Another critical element linked to this feature relates to the

rewards/penalties mechanism, which may be allowed or not by law (and which depends also on how anonymity and/or confidentiality of the reports is regulated). Finally, if countries do not provide a punctual legislative background, social norms about the whistleblowing phenomenon depend on how each organization decides to manage it.

At the other side, the utility of Prospect Theory is also given by the fact that here the final aim is not just to indirectly *nudge* individuals to report (giving them a more complete framework to make more informed decisions and reduce their fear of uncertainty) but also to focus on how suggesting them, as also the message credibility and its powerfulness matter (Petty and Cacioppo, 1986; Bhattacharjee and Sanford, 2006)

Given the importance of the agents' active involvement, the content of such information regards the concrete individuals' benefits (costs) for whistleblowers from an economic and psychological perspective if they do (not) report a case of misconduct. Such approach is in line with the theoretical assumptions of the Model of Discretionary Reporting (Graham, 1986; Schultz et al., 1993), according to which the individual propensity to report depends, among others, on the individual perceived costs (and benefits; Dalton and Radtke, 2013) of blowing the whistle. In addition to that, it is coherent also with those theoretical contributions that interpret the whistleblowing decision as a form of Prosocial Behavior (e.g. Dozier and Miceli, 1985; Brewer and Selden, 1998) in which individuals, in a more or less conscious way, make their final decision through a sort of "cost-benefit analysis".

This work constitutes a converging point between two streams of literature, that independently analyze the relevance of the Prospect Theory in the Public Administration context (Olsen, 2015; Grimmelikhuijsen et al., 2016; Belardinelli et al., 2018; Gilad et al., 2018) and in the whistleblowing panorama (Boo et al., 2016; Chen et al., 2017; Young, 2017; Oelrich, 2019). The objective is to fill such gap, exploiting

these branches in order to put them together and study whether information provision and its framing could be considered concrete policies to foster civil servants' attitude towards reporting.

Other elements that increase the originality of this dissertation include, referring to Chapter 1, the development of a systematic literature review of all the contributions that studied the whistleblowing phenomenon through an experimental design and the particular focus on the Public Administration side. Chapter 2 overcomes a common and relevant problem in this subfield, which relates to the very small samples involved in the surveys, which limit the reliability of the results. Also the treatments and the scenario employed are totally novel, with the first ones that capture the relevance of perceived personal costs and benefits (going beyond the implementation of financial incentives schemes) and the latter that presents a case common enough to be easily understood and in which people can deeply identify with (with respect to the classical cases typically too narrow to the accountancy world). Finally, Chapter 3 has the great merit to firstly develop a replication study to test and expand the external validity of the results emerged in the Italian context, comparing two countries with different cultural backgrounds and populations on the basis of a common survey. In addition to that, it introduces elements of Bayesian analysis in the whistleblowing experimental literature to overcome a diffused limitation of previous results linked to the analysis of small samples.

In terms of methodology, in order to better test the effectiveness of this policy, the chosen approach consists in the exploitation of experimental designs; thanks to this setup we are able to infer causality, and claim whether the framing of the economic and psychological consequences for the civil servants if they do (not) report actually influences their behavior. Given the similarities in terms of frameworks and methodological approaches, to design the experimental part I take advantage of the

growing transparency literature in the Public Administration field (e.g. Li and Van Ryzin, 2017; Cucciniello et al., 2017).

The specific focus on the Public Administration side can be explained from different perspectives:

- first of all, the current whistleblowing literature shows a great discrepancy towards the private sector. This evidence clearly emerges in the review of the first chapter;
- given this unbalance, particular attention to the public sector is needed also to clarify whether the distinction with the private one matters or not, as it seems to depend on the sector under study; in the whistleblowing context, the only contribution that explicitly manipulate this factor gives unclear results (Heumann et al., 2015). Then, such approach would help to further enlighten if it makes sense to apply the private versus public dichotomy in the whistleblowing context;
- from a more concrete perspective, the importance of studying how whistleblowing processes work inside the Public Administration environment can be proved by evidences from recent data: among all the public and private sectors, the Government and Public Administration one is the third most affected by misconducts in absolute terms (ACFE, 2018). If we add to the discussion the fact that whistleblowers are the most important source of detections (in 40% of the cases misconducts are discovered by tips; ACFE, 2018), this gives further need for additional research.

For what concerns the structure, the three chapters represent the different stages of analysis of the phenomenon of interest, which range from the introduction to the topic and the current literature on that, the development of an experiment to test a new and specific hypothesis and the replication of the same survey, in order to better generalize and

provide conclusions at the light of an increased external validity. These stages are organized as follows:

- the first chapter reviews all the contributions that analyze the determinants of whistleblowing through experimental designs, in order to better understand the topic and provide the state of the art about how this approach has already been exploited; particular attention is given to those articles that manipulate elements linked to public sector contexts;
- once obtained a general panorama and highlighted the main current gaps, the second chapter empirically tests in a specific context whether delivering some information (and how it is framed) actually influences the individual attitude towards reporting some wrongdoing, taking as reference the Municipality of Milan through an online survey experiment;
- given that experimental contributions are able to infer causality but, at the same time, can suffer from limited external validity, the third chapter specifically focuses on that, replicating the same experiment in another context through a comparative study (Walker et al., 2017a; Walker et al., 2017b; Walker et al., 2018) and testing whether national culture matters and how. In order to better do that, I develop an *empirical generalization* (Tsang and Kwan, 1999), in which I apply the same measurement, analysis and methodological approach to a different population.

2. Conclusions

The aim of this thesis is to study whether information and its framing are relevant in influencing the individual attitude towards reporting illicit behaviors. In order to do that, I develop an approach coherent with my specific objectives; nevertheless, such theme could be further analyzed, to get all the nuances that characterize it and better generalize the findings. Examples of potential future research may relate, for instance, to the effects of delivering different pieces of information: while here I test the

impact of information about the concrete consequences for the individuals if they do not report, future contributions could test how the information asymmetry (for example related to the knowledge about the current legislation and their rights) affects individuals' propensity towards reporting; information may also relate to past (absence of) retaliation to whistleblowers (i.e. telling that past reporters are still in charge) or the successful implementation of past investigations (i.e. telling that wrongdoers are not in charge anymore).

Other dimensions that might affect the impact of such information regard the exploitation of different channels (video versus audio versus written messages), the subject that delivers the information (men versus women, but also superiors versus colleagues or internal versus external subjects) or the impact of potential mediators and moderators (e.g. how information could affect trust towards the organization and then increase the individual reporting attitude). Finally, replicating these studies in different contexts would help to improve the knowledge of such mechanisms and test the external validity of the results.

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Chapter 1: Whistleblowing in Behavioral Public Administration research: why it is relevant and what can be done.

Abstract

The debate on whistleblowing and its relevance is well established in the literature, and traces back up to the first eighties. The persistence of unreported wrongdoing inside an organization can be highly harmful, not only for the organization itself but for the society in general, bringing inefficiencies, losses in productivity, economic wastes and also ethical concerns. Nevertheless, this field is far from being saturated, and the aim of this contribution is to highlight the current status as well as to indicate potential ways for future research. In particular, the attention is focused on those articles that study the antecedents behind whistleblowing intentions through experimental designs; thanks to this approach, it is possible to get an overview about direct causality mechanisms.

The classification of the relevant contributions follows the criteria suggested by Near and Miceli (1995). Although Gao and Brink (2017) adopt a similar approach in their review, they limit their analysis just to those experiments that deal with the accounting literature. In addition to that, the aim here is also to highlight how the public administration context has been investigated in this stream of literature.

The findings underline how the current situation is characterized by remarkable literature gaps. In fact, although experiments are an effective way to infer causality relationships, there is still a lot of work that could be done. This holds in particular for what concerns the direct involvement of public employees or, at least, the replication of public contexts; in both cases, it is barely possible to find some contributions. Finally, the paper concludes with some suggestions for future research, taking inspiration from what has already been done in other contexts and what it is still missing at all.

1. Introduction

As anticipated in the introduction, when we need to define the concept of “blowing the whistle” the reference point for the entire community is the seminal work by Near and Miceli (1985), according to which the act can be seen as “[...] *the disclosure by organization members (former or current) of illegal, immoral or illegitimate practices under the control of their employers, to persons or organizations that may be able to effect action*”.

The reason why whistleblowing has been analyzed in the academic literature since the eighties derives not only from a general interest on the topic or from the ethical issues linked to it, but also from the concrete economic consequences caused by non-reported illicit behaviors. In fact, these wastes affect both the specific organization involved in the wrongdoing and citizens in broader terms: in the first case, such misuses take origin from a lower productivity and consequent higher costs, resulting in an average firm loss of 5% of the revenues (ACFE, 2018); this is then reflected into higher prices and/or taxes for the final users, given that the mentioned revenues loss corresponds to an overall damage of 4 trillion dollars worldwide (ACFE, 2018). At the light of this point, reducing as much as possible the persistence of wrongdoing would be beneficial from both economic and ethical perspectives.

The main critical aspect is that, when such behaviors take place, they tend to persist even for a long time before being discovered (when they are), although very often many witnesses are aware of what is going on. The report by ACFE (2018) shows how tips are the common way through which misconducts are discovered, and in 53% of the cases such tips are provided by employees inside the involved organizations. Nevertheless, traditionally the reporting rates (either inside or outside the organization) are very low; this explains why scholars focused so much attention to understand the individual drivers that push (or block) such witnesses to expose themselves and report what they see.

This attention is confirmed also at the light of recent contributions that aim at clarifying the current status of the literature in the whistleblowing context, summarizing the status of the art from different perspectives, like focusing on the antecedents (e.g. Culiberg and Mihelic, 2017; Lee and Xiao, 2018), on some specific laws (e.g. Gordon and Nazari, 2018), fields (e.g. Blenkinsopp et al., 2019) or on methodological aspects (Gao and Brink, 2017).

Given that there is a growing and developing literature about the analysis of whistleblowing and its determinants that goes beyond simple correlations and gets causal relationships through experimental designs, the current chapter departs from the mentioned contribution by Gao and Brink (2017) and gives light to this specific branch, reviewing and summarizing all those papers that manipulate treatments in order to infer causality about some specific phenomena. The final aim of this analysis is to review all the experiments in the whistleblowing context, with a particular focus on those which specifically deal with the public sector.

The categorization of the whistleblowing antecedents that is going to be applied in the next paragraphs follows the approach, anticipated in the introductory chapter, developed by Near and Miceli (1995) (see also Mesmer-Magnus and Viswevaran, 2005; Miceli et al., 2008; Vadera et al., 2009; Gao and Brink, 2017). According to their contribution, it is possible to distinguish between *individual* and *situational* variables: the first ones include the characteristics of the whistleblower, of the report recipient and of the wrongdoer, while the latter considers the characteristics of the wrongdoing and of the organization.

The interest towards experimental approaches derives from the fact that they can be a more effective instrument with respect to other empirical approaches: the possibility to directly infer causality is the main advantage, as it can provide more reliable results with respect to classical surveys or empirical studies; linked to that, this methodology allows to study some phenomena and mechanisms that otherwise would not be

studied properly; moreover, as this approach has gained particular interest in the recent years, the great majority of these contributions provide useful insights with very up-to-date datasets; finally, the causality feature allows to better elaborate on the research and practical implications.

Another point that is worth to mention relates to one of the typical limitations of the whistleblowing literature, which is the measurement of the dependent variable; in fact, in the great majority of cases scholars study the *attitude* towards reporting, as it is almost impossible to test the *act* of reporting. When analyzing the first phenomenon, effective experimental designs have the aforementioned advantage to infer causality with respect to empirical studies that can just talk about associations with the other independent variables. In the analysis of the real behavior, although experimental approaches may be restricted by ethical issues (treating individuals who are going through the process of a real report), non-experimental studies would surely bring to biased results: in fact, by construction, only cases with no or limited confidentiality could be analyzed (no data would be available by definition for anonymous reports). Then, evaluating the real whistleblowing behavior as a function of the agents' individual and organizational characteristics would lead to unreliable results, as we don't have information about people who report only anonymously (who could be characterized by different characteristics) and public or private organizations that guarantee anonymity, confidentiality or neither of the two could signal quite different characteristics and ethical values. At the light of that, although they cannot easily manipulate real behavior, experimental approaches remain the best approach to study the impact of specific determinants.

With respect to the aforementioned review by Gao and Brink (2017), this chapter fills the following gaps:

- a) updates and integrates it including into the analysis all the experiments about whistleblowing, and not only those that specifically relate to the accounting literature;
- b) categorizes the current literature according to the public and private sector dichotomy and, given the high discrepancy towards the latter, suggests possible ways to integrate and balance the Public Administration literature;
- c) highlights the current literature gaps not only from a methodological perspective (e.g. importance of experimental designs, few contributions in the public sector...) but also in content terms, underlining the main missing subtopics and how the whistleblowing field could be further improved.

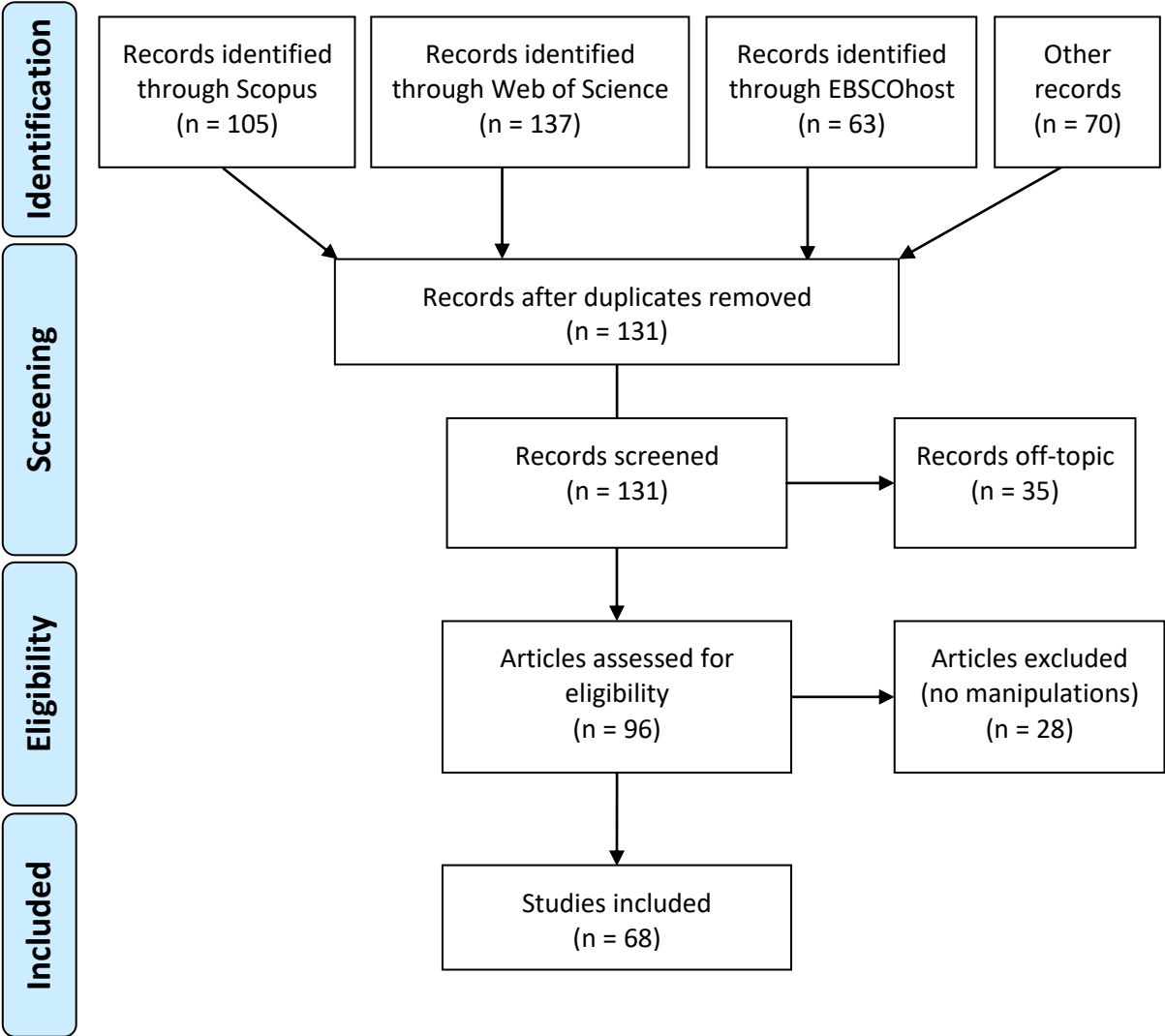
The chapter is organized as follows: Section 2 focuses on the methods (*point a*) while Section 3 reviews the current literature on all the experiments (both in private and public contexts) that deal with whistleblowing intention-related determinants, following the taxonomy presented in Near and Miceli (1995) and successively integrated by Miceli et al. (2008). Section 4 presents the main technical characteristics of the selected papers, and then shifts the focus to those articles that study or replicate public contexts (*point b*); Section 5 wraps up, pointing out what has already been done, what is still missing and what could be relevant themes to further develop (*point c*).

2. Methods and eligibility criteria

For what concerns the data collection procedure and the eligibility criteria of the papers under analysis, three research databases have been exploited: Scopus, Web of Science and EBSCOhost; residual contributions were collected through further searches in Google Scholar. In all the cases, the selected keywords regarded a content component (in 5 versions: *blow + whistle; whistleblowing; whistle-blowing; whistleblow; whistleblower*) and a methodological component (*experiment**); for each

research database, both types of keywords had to be present in the title and/or in the abstract. Given that the main objective is to provide a general overview on the experimental studies on whistleblowing, no keywords about the sector under analysis have been applied at this stage. The section that focuses on public sector (4.1) includes the subsample of contributions who exploit public employees (or other subjects that mimic their behavior) in a public context; the information about their working sector is collected from the Data section, while the sector under study is retrieved from the scenarios. The scheme below shows the procedure that brought from the raw results to the final sample of articles under analysis. Only contributions in English language have been considered.

Figure 1 – eligibility criteria with PRISMA flow diagram (Moher et al. 2009)



The first step after the collection of the raw results regarded the exclusion of the duplicates, both within and between databases; this process restricted the sample from 305 to 131 papers. Successively, after a first screening of the abstracts, all those contributions that were either not published (i.e. 7 conference proceedings) or did not deal with whistleblowing issues have been excluded; 5 studies were removed because the whistleblowing component actually regarded “reporting bad news” which did not involve illicit behaviors (Keil et al., 2004, 2007; Park et al., 2008, 2009; Park and Keil, 2009) while the remaining ones had a misleading use of the considered keywords. Finally, a more in depth analysis checked whether the articles actually had some experimental features (i.e. randomly assigned treatments); after this stage, additional 28 articles were excluded, restricting the final sample to 68 empirical papers. The presence of more than 68 elements in the following analysis derives from the fact that, as some contributions manipulate more than one dimension, they could appear in more than one paragraph.

3. Categorization and overview of the relevant articles

Similarly to Gao and Brink (2017), the clustering process exploited in this chapter and the presentation of the included articles follows the taxonomy proposed by Near and Miceli (1995) and subsequently by Miceli et al. (2008). As already anticipated in the introductory chapter, they identify five main families of determinants that influence the individual decision towards blowing the whistle:

- 1) characteristics of the whistleblower, which include *personality characteristics* (positive affectivity, locus of control, self-esteem, proactive personality, relativism vs. idealism, authoritarianism vs. self-righteousness, moral judgment and values), *demographic* and *job situation* characteristics (job variables, satisfaction and commitment to the organization);

- 2) characteristics of the report recipient, that relate to the peculiarities of those who *receive the report* and of the *reporting channel* (in terms of both personal/technical characteristics and their power);
- 3) characteristics of the wrongdoer, that can relate to her *power* (hierarchical status, resources under control, expertise, charisma) and *credibility* (like perceived incentives or past performance);
- 4) characteristics of the wrongdoing, like the *organizational dependence on it*, the degree of *convincing evidence* or the *legal basis for the complaint* (the degree to which “*the wrongdoing is seen to be clearly illegal, as opposed to merely illegitimate or immoral*”; Near and Miceli, 1995);
- 5) characteristics of the organization, which include *appropriateness of whistleblowing* (as something “*considered part of one's regular job*”; Near and Miceli, 1995), *organizational climate* (the organizational shared values that encourage –or discourage– wrongdoing and whistleblowing), *organizational structure* (the impact of bureaucratic processes) and the *power of the organization* (its resistance to change with respect to the external environment, in particular in response to the external reporting by the whistleblower).

The first three items relate to the *individual* variables that affect the outcome of whistleblowing, while the last two to the *situational* ones. Given the peculiarity of some specific manipulated elements, I also added a sixth residual category.

An important caveat has to be highlighted referring to the clustering criteria listed above: as usually the hypotheses and the variables under analysis are multiple, given that this review specifically focuses on the experimental aspect, in the following paragraphs I will discriminate exclusively according to the manipulated factors.

3.1. Characteristics of the whistleblower

Considering the first category of determinants, only six papers exploit an experimental approach. In fact, usually scholars tend to collect information about the individuals' demographic, job or personality factors, considering them as moderators or simple covariates. Among those who manipulate these aspects, a few contributions focus on the role of whistleblower *demographic characteristics*, like the gender (Heumann et al., 2015), the wage level (Zhang, 2008) or their risk attitude (Oelrich, 2019). Others put their attention to *moral aspects*, as the individual convenience to report (Jones et al., 2014), her perceived responsibility to report (Lowry et al., 2013), her evaluation about the necessity of a further audit step (Kaplan, 1995) or letting them recall past critical episodes (Waytz et al., 2013). In terms of *job-related characteristics*, some contributions manipulate the subject role in the scenario, ranging from external/internal auditor versus marketing analyst (Arnold and Ponemon, 1991), client versus official (Schikora, 2011), employer versus worker (Stikeleather, 2016) and taxpayer versus tax officer (Buckenmaier et al., 2018).

3.2. Characteristics of the report recipient

The stream of literature that evaluates the effects of some peculiarities of the reporting channel is more developed in terms of amount of contributions (17), and it is possible to cluster them according to the categorization made by Near and Miceli (1995). In terms of *receiver characteristics*, manipulated elements include qualitative aspects like the internal (Kaplan and Schultz, 2007) and external (Wilson et al., 2018) audit department quality, the effectiveness of anonymous reporting channel procedural safeguards (Kaplan et al., 2009) and the auditor's active behavior (Kaplan et al., 2011).

For what concerns the *report recipient characteristics*, it is possible to categorize the relevant contributions depending on whether they relate to the internal/external channel dichotomy or to the anonymity degree of the

reporting procedure. In the first case, the treatments compare the effects of internal versus external reporting with respect to existing channels (Kaplan and Schultz, 2007; Zhang et al., 2013), auditors (Kaplan et al., 2011) and the reporter belonging group (Hopman and van Leeuwen, 2009). Regarding the second aspect, some scholars analyze the effect of the presence/absence of anonymous reporting channels (Hunton and Rose, 2011; Jenkel and Hansen, 2012) or the possibility to choose among instruments with different degrees of anonymity and internal/external features (Kaplan and Schultz, 2007); other papers manipulate identity disclosure after a potential report, either already known ex-ante (Lowry et al., 2013; Mao and DeAndrea, 2019) or revealed ex-post (Seifert et al., 2010; 2014).

Another sub-cluster that is worth to mention relates to the recent interest for the effect that monetary rewards can have on individual behavior depending on their presence/absence (Oh and Teo, 2010; Andon et al., 2018; Lee et al., 2018), the eligibility/ineligibility (Berger et al., 2017) and the type and amount of the reward (Rose et al., 2018). Note that the contributions of this section put their attention on the role of monetary incentives provided from an external entity (typically the Security and Exchange Commission for the US-related papers); in case the rewards are established as an internal policy it is considered as a *characteristic of the organization* (see paragraph 3.5).

A final paper that cannot be strictly categorized according the determinants listed by Near and Miceli (1995) but that it is worth to mention relates to the impact of the degree of whistleblower's trust on the reporting system, studied by Lowry et al. (2013).

3.3. Characteristics of the wrongdoer

Near and Miceli (1995) cluster those factors related to the wrongdoer depending on the degree of *power* and *credibility*. Within the first category, the current works study the effects that emerge assuming, for the wrongdoer, different ranks (peer of the whistleblower or his

supervisor; Taylor and Curtis, 2013), variations within a specific rank (different kinds of supervisor; Brink et al., 2018) and on the degree of retaliation threats towards the witness (Miceli et al., 1991). Within the *credibility* aspects, just a couple of experiments manipulate the wrongdoer past performance, presenting it as good or bad to the potential whistleblower (Kaplan, 1995; Robertson et al., 2011).

Other contributions that can be attributed to this topic but don't fit precisely to the previous categories include those who manipulate the gender of the cheater (Kaplan et al., 2009; Henningsen et al., 2013), her likeability in broad terms (Kaplan et al., 2010; Robertson et al., 2011), the genetic relatedness between the wrongdoer and the owner of the organization (O'Brien et al., 2018), their physical closeness (Henningsen et al., 2013; Boo et al., 2016) and the wrongdoer awareness about the existence of other witnesses (Robinson et al., 2012).

3.4. Characteristics of the wrongdoing

Sixteen articles manipulate some aspects related to the illicit behavior; across them, there is a marked discrepancy in terms of contributions that focus on the credibility of the whistleblower's *evidence* with respect to those that analyze the organizational *dependence* on the wrongdoing and those that instead study its *legality*.

Within the first category, a couple of contributions study the impact of the subject's strength of evidence (Brink et al., 2013; 2015a), while other focus on the relevance of the timing of the fraud discovery (Lowe et al., 2015) and on the effect of how the unethical behavior evolves across time (Gino and Bazerman, 2009). In terms of *dependence*, scholars consider the overall degree of risk for the organization (Lowry et al., 2013), the relevance of the fraud (Brink et al., 2015b; Robinson et al., 2012) and the importance of the firm project touched by the wrongdoing (Smith et al., 2001). Other studies manipulate the type of fraudulent act, for instance comparing misappropriation of assets versus fraudulent financial reporting (Kaplan et al., 2009; 2010; 2011; Scheetz and Wilson, 2019), the latter

versus insider trading (Brink et al., 2017), capitalizing expenses versus ignoring returns (Shawver et al., 2015), over-declared versus hidden costs (Ayers and Kaplan, 2005), life and death versus financial matters (Heumann et al., 2015) or theft again financial fraud, environmental misconduct, safety violations and harassment (Feldman and Lobel, 2008).

3.5. Characteristics of the involved organization

The aspect that has been mostly analyzed relates to the role that the organization that suffers the wrongdoing has on the witness' final decision (34 contributions). It can refer to the *appropriateness of whistleblowing* (the extent to which whistleblowing is considered part of one's regular responsibility), the *organizational climate* (shared values and overall ethical climate), *organizational structure* (its level of bureaucracy) and the *power* of the organization (its resistance to change, in particular with respect to external entities). Although the great majority of the experiments on whistleblowing belongs to this category, they all relate to the second and third item. To increase the fluency of the paragraph, further sub-clusters have been applied.

The most studied topic considers *organizational climate* in broad terms, and highlights the importance not only of the current situation but also of past outcomes: in the first case, included studies analyze the degree of moral intensity and ethical environment (Bhal and Dadhich, 2011; Dalton and Radtke, 2013), the relationship between the potential whistleblower and the organization (Oh and Teo, 2010) and the fairness associated with the whistleblowing processes consequent to the report (Seifert et al., 2010; 2014); in the second one, attention is given on how past whistleblowers and wrongdoers have been treated (Zhang et al., 2013; Kaplan et al., 2012) and on the degree of organizational responsiveness (Taylor and Curtis, 2013).

A relevant amount of contributions analyze the influencing role of the potential reporter's supervisor (Smith et al., 2001; Seifert et al., 2010;

2014; Bhal and Dadhich, 2011; Mayer et al., 2013) and coworkers (Zhang, 2008; Robinson et al., 2012; Lowry et al., 2013; Mayer et al., 2013; Brink et al., 2015; Choo et al., 2019).

Another important issue that reflects the overall organizational climate regards how retaliation is perceived: while some contributions study how different types of reprisal affect the individual final decision (Arnold and Ponemon, 1991; Liyanarachchi and Adler, 2010; Liyanarachchi and Newdick, 2009), others analyze the impact of threats and their potential work-related or reputational consequences (Hunton and Rose, 2011; Guthrie and Taylor, 2017) and how the organizations try to face this problem (Kaplan et al., 2012; Wainberg and Perreault, 2016).

As mentioned in paragraph 3.2, other policies may include incentives or rewards for internally reporting: here, the great majority of the articles studies the effect of the presence versus absence of monetary incentives (Xu and Ziegenfuss, 2008; Gino and Bazerman, 2009; Brink et al., 2013; Stikeleather, 2016; Guthrie and Taylor, 2017), the impact of different types of incentives (Boo et al., 2016) or the effect of group versus individual rewards (Jenkel and Haen, 2012); other policies include how incentives or general messages about whistleblowing are framed (Chen et al., 2017; Young, 2017).

In terms of *organizational structure*, manipulated factors include the number and type of hierarchic levels (Makowsky and Wang, 2018), the for profit versus non-profit aim (Scheetz and Wilson, 2019), the CSR versus non-CSR status (Brink et al., 2018), the role of an internal sub-certification process (Lowe et al., 2015) and how discretionary versus uniform rules can impact on the individual's behavior (Jones et al., 2014). Residual contributions test the effect of the degree of the whistleblower's job security (Wainberg and Perreault, 2016) and the status of the potential whistleblower's belonging group (Hopman and van Leeuwen, 2009).

3.6. Residual characteristics

Among the considered papers, twelve of them cannot be clustered into the previous sections, but still focus on elements that have an impact on the reporting choices.

The most recurrent element relates to the legislative apparatus and, in particular, to the consequences that different approaches towards the whistleblowing phenomenon at a national level can bring in terms of individual incentives. A couple of articles exploit cross-sectional surveys to evaluate the effect of law changes over time (Miceli and Near, 1989; Miceli et al., 1999); others manipulate different types of legislation in order to test their effects, focusing on leniency programs (Schikora, 2011; Apesteguia et al. 2017; Buckenmaier et al., 2018), on protection programs against retaliation and identity disclosure (Feldman and Lobel, 2010; Oh and Teo, 2010; Lee et al., 2018) and on the degree of reciprocity in terms of monitoring (Schikora, 2011; Serra, 2012).

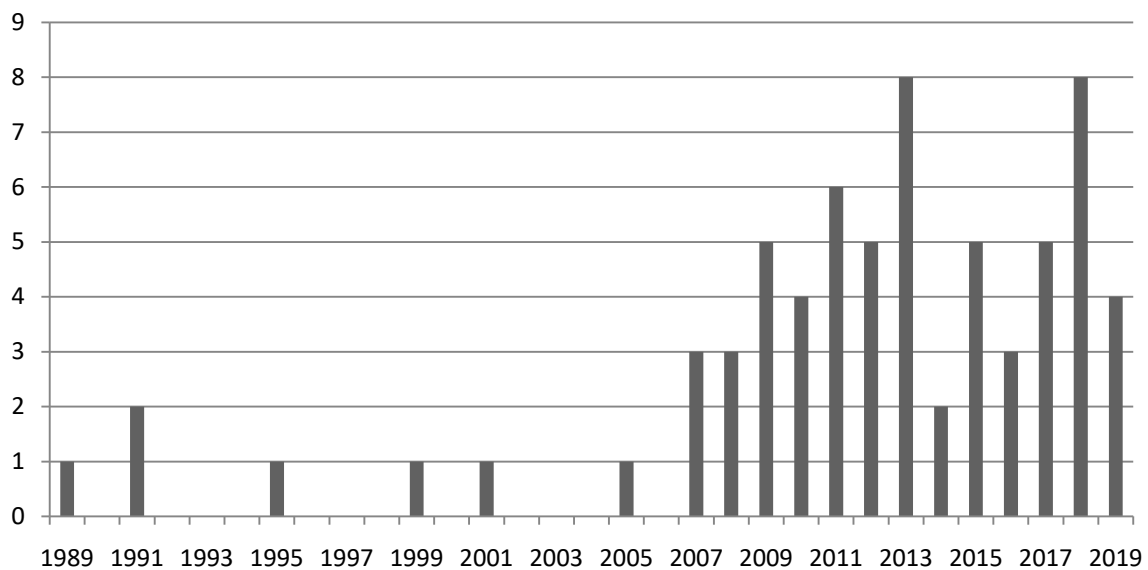
The contribution of Heumann et al. (2015) is interesting as it tests whether there are relevant differences depending on the public versus private sector.

4. Evidences from the selected articles

In addition to the study of the content of those contributions that satisfy the eligibility criteria, it is interesting to understand what are the elements that characterize them, and if it is possible to find some trends. This type of analysis helps to acquire a broader view about elements like the preferred methodological approaches, the respondents' characteristics, the distribution of the publications across time or the main countries under study.

For what concerns the year of publication, through it we can see whether the whistleblowing topic can be currently considered a hot topic or not (at least for what concerns its study through experimental lenses).

Figure 2 – Year of publication



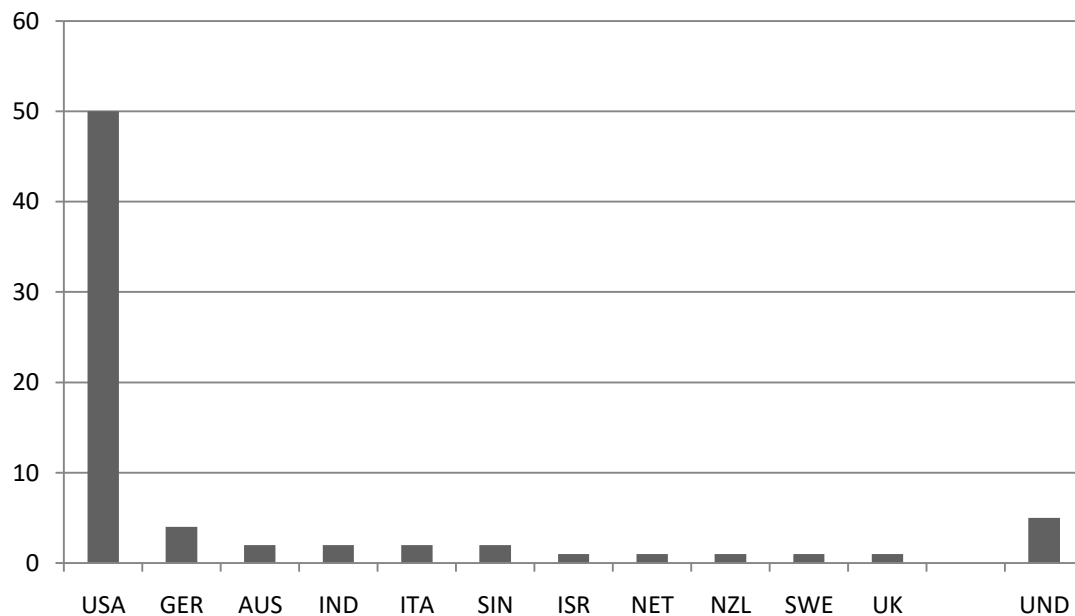
What emerges is that until 2006 only sporadic studies developed experimental approaches to study the phenomenon of our interest. Nevertheless in the last decade there has been a marked increase, moving from the previous less than one article per year to almost 5; this evidence could be explained by the increasing diffusion of experimental designs to analyze a phenomenon, as this trend is in line with the recent increase in experiments also in other fields (e.g. Li and Van Ryzin, 2017, for what concerns the experimental publications in the Public Administration context). Although the magnitude is not particularly high, its increase and the related stability in terms of increased interest suggest that we will probably see further research published in the future.

Another peculiarity that can be easily taken into account regards the nationality of the respondents. Many times the covered countries are associated with the nationality of the researchers or with their affiliation; when academics can rely on already existing sources, then there will be an overconcentration on the analysis of those samples, further stimulating the discrepancy with those countries that are not represented.

In Figure 3 I considered the countries under study (which may not correspond with the researchers' ones) for each paper; the *UND* category

on the right specifies that, for some contributions, it has not been possible to go back to the countries under study. Given that a few articles developed cross-country analysis, the overall sum is slightly higher than the 68 studies of our sample.

Figure 3 – *Countries under study*

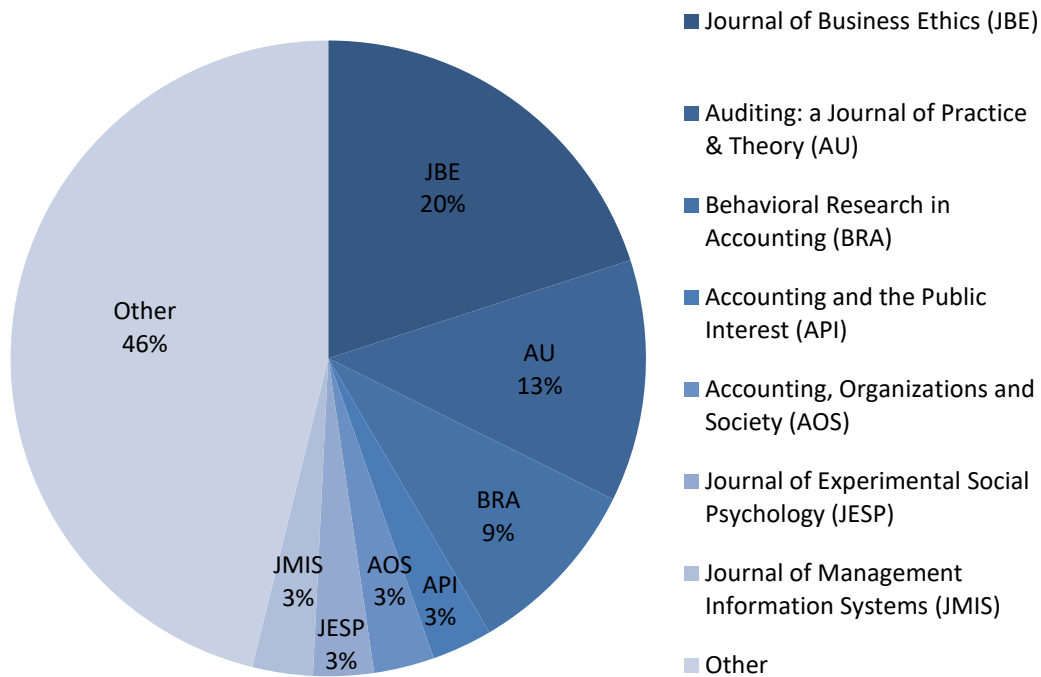


As often happens also in other fields, there is a huge discrepancy between US and non-US studies; 50 articles out of 68 (69,44% of the total) focus on the United States, while the second country in terms of contributions is Germany, with just 4 papers. A partial explanation for this phenomenon derives from the existence of the Merit Systems Protection Board (MSPB), a US federal agency that periodically releases the results of their surveys about whistleblowing and other job-related issues, providing full access to both the text of the questionnaires and the answers; thanks to this dataset, many scholars end up analyzing the US context instead of their own one.

Another feature that it is worth to mention relates to the journals that are the most diffused channels of publication of these experiments. This element signals both what are the journals that are more interested in this

particular methodological approach and how scholars tend to frame their works in order to better “sell” their articles. In Figure 4, there have been included all the journals that published at least two of the papers under analysis; the remaining ones have been clustered under the “Other” voice.

Figure 4 – *Experiments published by journal*



The first aspect that emerges regards the relevance of the residual voice: almost half of the publications are spread among a myriad of different journals, which could derive from the fact that whistleblowing is a quite narrow phenomenon in the academic literature but at the same time it shows the potentiality in terms of its interdisciplinary nature. If we focus on the most diffused publishers, the Journal of Business Ethics and Auditing represent alone another third of the total amount of articles; interestingly, some journals are particularly dedicated to behavioral aspects (e.g. Behavioral Research in Accounting, Journal of Experimental Social Psychology).

Figure 5 highlights the main features for what concerns the characteristics of the respondents. Among the included categories, the *undefined* category refers to those experiments for which the authors do not provide any information about the individual peculiarities (typically, experiments conducted through professional platforms like MTurk); then, it is impossible to determine whether the subjects belong to the private or public sector. *Working students* are professionals who are also university students (usually enrolled in MBAs); they are involved because of their particular nature of workers that can be easily recruited into university lab experiments. Regarding the *mixed sectors*, this category refers to the fact that in some studies there are involved workers from both public and private sectors (although just in one case the aim was to study the differences between the two contexts).

Figure 5 – Type of respondents

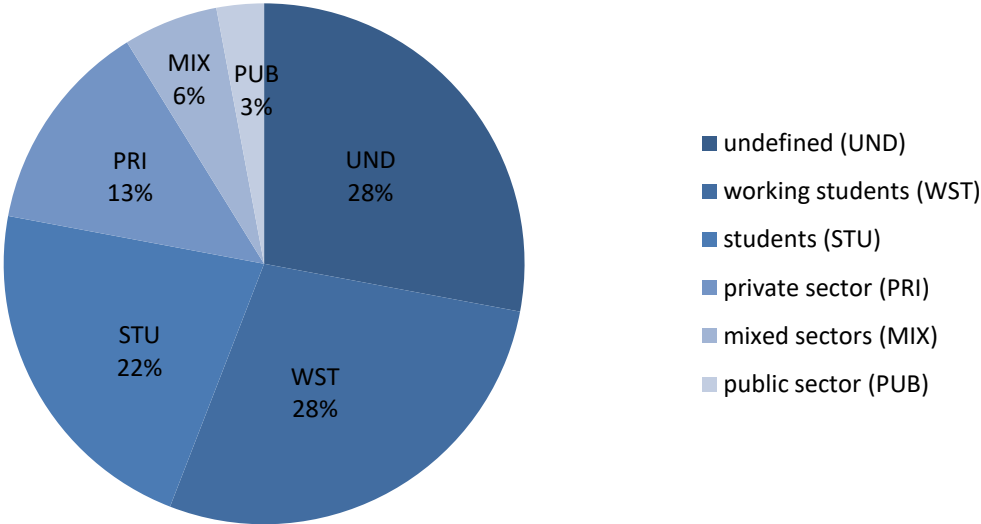
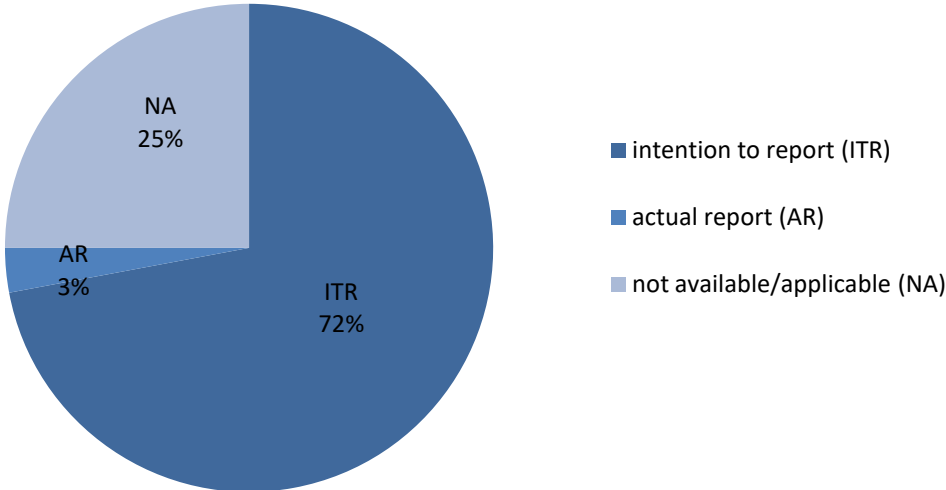


Figure 5 allows for different interpretations: considering the working status, the situation is quite balanced among university students (22%), working students (28%) and working individuals (22%); in terms of sectors under analysis, only in the 9% of the cases public employees are (at least partially) involved in the surveys.

Finally, the following figure shows what the 68 contributions consider as their dependent variable. The NA voice refers to those cases in which either the authors did not provide sufficient information in the article or the whistleblowing behavior was not the direct focus of the analysis.

Figure 6 – *Type of dependent variable*



Excluding the 25% referred to the unclear contributions, the main evidence that emerges is the fact that in almost all the cases the researchers were able to analyze just the respondents' attitude towards blowing the whistle and not their real behavior. This feature of the whistleblowing literature is not new, as it is very hard to involve into questionnaires people who made real reports and it is nearly impossible to develop experiments in real-life settings with potential reporters without facing ethical and anonymity issues. The only exception that concretely help scholars to get a bit closer to the analysis of the real behavior is the aforementioned Merit System Protection Board (MSPB) survey. Nevertheless, just a few contributions tried to exploit this dataset with an experimental approach (Miceli and Near, 1989; Miceli et al., 1991; Miceli et al., 1999). As a consequence this implies a natural limit on the study of this field, as almost all the contributions end up analyzing the individual self-reported intention to report without the possibility to check for

potential social desirability biases and for environmental and contextual factors; in fact, in 96% of the cases scholars exploit survey/lab experiments, while just in the three aforementioned contributions the authors exploited different waves of the MSPB to analyze the evolution of the actual reporting rates before and after external shocks (like changes in the whistleblowing legislation).

Although many other types of analysis could be developed, these figures already provide a flavor about the characteristics of the articles included in the analysis.

4.1. Overview of experiments on PA issues

In many countries, TV broadcasts and newspapers daily report news about scandals that take place in the local and national Public Administrations; the Trump case mentioned in the introduction is one of the most relevant and recent episodes, and it is particularly worth to mention on this thesis both as an example of misconduct scandals in the Public Administration and due to the fact that it has become public knowledge after an anonymous whistleblower reported the case to the press.

Corruption in the public sector is traditionally one of the most classical illicit behaviors, but there is a myriad of other wrongdoings that take place in the everyday life inside a public organization. Nevertheless, not only the whistleblowing activities in the public sector are very rare (and the retaliation treats by the US President Trump, cited in the introduction, give a flavor of the reasons behind this choice), but also the study of this phenomenon in academia is quite lacking; unfortunately, the subfield of experimental designs in this context is not an exception.

Since the dissertation has a specific focus on the public sector, this section is dedicated to those experiments that specifically analyze these contexts, directly involving public employees or asking citizens/students to identify themselves with public workers. In order to get a more in depth

knowledge about the current panorama on the public sector, we can take again the aforementioned contributions and cluster them not according to the mechanism under analysis but depending on the type of subjects and sectors involved as follows (see Table 1):

1. articles that study *public sector contexts*; this kind of contributions is the most interesting for our purposes, as it takes advantage of public employees, who respond about public sector issues;
2. articles that explicitly *replicate public sector contexts*; in this case, scholars exploit different pools of participants like university students or citizens (through online platforms like Amazon MTurk) to mimic the hypothetical behavior of public employees in their working environments;
3. articles that study *no specifically defined contexts*; in many cases, authors tend to model their scenarios in order to maintain a certain degree of generalization. They focus just on the behavior/peculiarity that they want to study, without providing any contextualization. Although this approach has its advantages, claiming that a certain mechanism is perceived and accepted in the same way in public and private contexts could create some confusion. In these cases, the lack of information is often extended to the involved participants, collecting or providing no sufficient information to even define the respondents' basic background;
4. articles that explicitly *replicate private sector contexts*; analogously to point 2, here students and/or citizens are requested to identify themselves with private sector employees;
5. articles that study *private sector contexts*; this category includes those experiments which involve private workers in order to study private sector contexts. Typically, contributions belonging to this cluster derive from the accounting literature, in which auditors or accountants are asked to give their point of view.

Table 1 – *Categorization by pool of respondents (rows) and context under analysis (columns), according to the proposed clustering*

	Public	Undefined	Private
Public	1	3	4
Undefined/students	2	3	4
Private	2	3	5

The order reflects the importance for the purposes of this chapter: the most interesting papers lie in the first two groups; group 3 represents unclear contributions, as the authors many times left the scenarios general enough to be applied to different contexts.

This clustering procedure follows the procedure presented in Section 2 (retrieving the data about the sample background and the scenario under study directly from the papers) and confirms what anticipated above, regarding how experiments are distributed among public and private contexts: in fact, over the 68 articles only 2 of them belong to the first category while 8 to public sector replications; in 16 cases we don't have enough information, while for what concerns the private environment there are overall 42 contributions (36 private sector contexts plus 6 private sector replications). A visual representation of such distribution is provided below in Table 2.

The only two articles that clearly refer to public sector issues are those by Miceli and Near (1989) and Miceli et al. (1999); both of them have been included in the "residual" category (paragraph 2.6), as they study the effect of legislation evolutions over time at a national level (in the US context). They exploit a law variation over time as an exogenous shock for their experiments; unfortunately, the fact that the data they consider is a cross-sectional survey and not a panel limits the power of their results, as it is not possible to talk about causation. The absence of other papers in this category, the fact that there are no induced manipulations at all and the consideration that none of these studies can be associated to any of

the proposed categories by Near and Miceli (1995) is a strong signal that research is missing in this context and that there are relevant literature gaps as well as huge opportunities in terms of potential future research.

For what concerns the articles that try to replicate public sector issues, the majority of these eight experiments belong to the organizational and residual voices in Section 3: Serra (2012) focuses again on legislation issues, while in the other cases the manipulation simply consists in different roles attributed to the respondents (Schikora, 2011; Buckenmaier et al., 2018) or on the seriousness of the retaliation suffered by the whistleblower (Liyanarachchi and Adler, 2011). The four remaining contributions analyze the academic context, which justifies the direct involvement of university students: the contribution by Henningsen et al. (2013) take as theoretical framework the goals-plans-action model by Dillard (1990), to investigate peer confrontation of cheating and whistleblowing to a course instructor; both Miceli et al. (1991) and Jones et al. (2014) test the students' propensity towards reporting after witnessing a faculty member misconduct, while Hopman and van Leeuwen (2009) focus on the dynamics between members of different universities when misconducts within a university are discovered by students belonging to the "rival" entity.

The remaining contributions are not the focus of this analysis. Nevertheless, the trend that emerges from the experiments that belong to the *undefined* category reflects a slightly higher coverage in terms of studied whistleblowing determinants.

A specific mention has to be given to Heumann et al. (2015), who explicitly manipulate the public versus private context dichotomy to see whether individuals' behavior in terms of reporting was different; the fact that their results show no apparent differences could imply that public and private sectors are not so different as one may think, and gives support to

the idea that already existing works on the private side could be beneficial for future analysis of the public sector.

5. Main results and suggestions for future research

In order to get a more immediate overview about the current situation in the literature, and find in an easier way potential paths for future research, Table 2 summarizes all the aforementioned experiments and how they are allocated according to the determinants and the sector under study. As some articles manipulate different dimensions, they can appear in more than one box.

The complete list of papers can be found in the Appendix: the references in italics highlight those contributions that exploit university working students as respondents. This specification has been made explicit because scholars tend to focus on the working status to underline the reliability of their answers, but only in a few cases it is possible to go back to their real occupations.

Table 2 – *Experimental studies on whistleblowing and their distribution according to the tested sector and topic*

	public sector	public sector replication	undefined	private sector replication	private sector
whistleblower	0	3	4	2	2
report recipient	0	1	4	1	11
wrongdoer	0	2	1	0	8
wrongdoing	0	0	4	1	12
organization	0	3	10	3	19
residual	2	3	2	3	2

Given the objective of this chapter, the next paragraph focuses on the results comparison across public and private contributions (when possible), while 5.2 and 5.3 depart from the main evidences to present what could be done in order to improve the current literature.

5.1. Main results for the Public versus Private studies

This schematic representation evidences even more how public sector contexts are markedly underrepresented with respect to private settings and how, in the majority of the cases, the few gaps already covered do not even involve real public employees.

In addition to that, another element that emerges is the incomparability of the results as, for instance, nobody analyzed the effects of legislation changes as Miceli and Near (1989) and Miceli et al. (1999) did for the US context.

Among the public setting replications, the contribution of Lee et al. (2018) analyzes the monetary rewards policy for external whistleblowing, similarly to Andon et al. (2018), Berger et al. (2017) and Oh and Teo (2010). In the public scenario, Lee et al. (2018) shows that monetary incentives have a positive effect in the US context, while among German respondents such regulatory interventions are less effective. The results of Andon et al. (2018), who also analyzed the US panorama, are in line with this finding; Oh and Teo (2010) confirm this trend from the Singapore context, although monetary incentives do not act as a moderator on the attitude-intention relationship. Berger et al. (2017), instead, highlight how, in certain contexts, incentive programs can inhibit whistleblower reporting to a greater extent than in the case of no incentives being offered at all. Regarding the residual papers, they manipulate the hypothesized legislation in the scenario, but as all of them test different aspects, the results comparability is quite limited. Overall, one of the hot topics in this context relates to the effectiveness of leniency policies, either in the public (Schikira, 2011; Buckenmaier et al., 2018) or the private sector (Apesteguia et al., 2007; Bigoni et al., 2012).

The first main takeaways relate to the discrepancy between public and private studies, the insufficient comparability of the few contributions and the ambiguous results that emerge from them.

5.2. Technical features

Apart from the controversial results listed above (or the lack of available papers on the public side to look for confirmations) and the literature gaps that emerge from Table 2 which will be discussed in the following paragraph, there are some technical aspects that could be taken into account to further increase the quality of future studies and get more reliable results from possible replications of current experiments.

Overall, elements that would improve the quality of the research in the whistleblowing context are:

- a higher engagement of public employees, in order to get responses from people who directly face the situations under analysis. Although many times bureaucrats are very difficult to intercept, and being able to get the permission from a certain public organization to involve its members is a long and costly process, the reliability and the originality of the results would be definitively worth the effort;
- a general increase of the sample size. The majority of the contributions exploits a 2x2 between-subjects design, and 25 over the considered 68 studies have less than 120 participants (which means on average less than 30 members per group). If public employees are not available, at least increasing the amount of individuals (students, working students or citizens) would be a first step towards the right direction;
- the improvement of the manipulation process. A considerable amount of studies presents as treatment something that in reality has been simply measured and then artificially clustered; applying a real manipulation maybe could be less powerful than exploiting (ex-post) an individual characteristic, but it would lead to more reliable answers.

5.3. Gaps and trajectories for future research

At the light of the considerations expressed throughout the review, it is clear how there are evident opportunities for future research, not just for further studies on the public sector, but for whistleblowing in broader terms. Focusing on the aim of this contribution, it is possible to depart from the blank boxes present in Table 2 to tackle the current gaps. Replication studies are important as well (Walker et al., 2017a; 2017b; 2018), in particular given the ambiguities that emerged in the previous paragraphs; the possibility of exploiting this specific instrument will be presented below.

What follows is a partial list of hints that could be the starting point for future research on transparency in the whistleblowing context; the suggestions are grouped following the same structure as Section 3.

Starting from the report recipient determinants, it would be interesting to analyze whether giving information to public employees increases their knowledge and/or their trust towards the channel and, in turn, their willingness to expose themselves and use the hotline to report. For instance, publicizing the existence of such an instrument (hypothesizing a situation of asymmetric information) could be effective for those individuals who, for any reason, were not aware about the reporting channel and are intrinsically willing to report if they witness some wrongdoing.

If we take as given that agents already share the same amount of information, a further step could be to test the role of giving information about the past outcomes of the reporting channel; one of the main weaknesses of the reporting instruments, in fact, is the lack of trust on them (and on the organizations that manage them) due to the fact that individuals do not know their effectiveness in terms of both punishment of the past wrongdoers and protection of the whistleblowers. Providing information about how the organization succeeded in managing the cases reported in the past (i.e. telling that past reporters are still in charge

and/or that wrongdoers are not in charge anymore) would increase the individual trust towards their organization and in turn their perceived safety in blowing the whistle.

Other suggestions regard themes partly touched by previous studies, but that definitively need to be clarified to obtain higher external validity. The first one relates to the "non-anonymity issue", as at one side it improves the quality and the effectiveness of the reports, but at the same time it gives less protections for the reporter; in this case, the challenge would be to identify the optimal equilibrium between confidentiality and anonymity. Another aspect regards the apparent paradox of the "too much information" negative effect, related to the salience of reporting and the reporting channel. As the current evidence makes sense but is quite counterintuitive, further research about what is the optimal information quantity/framing/diffusion channel would help to disentangle the mechanisms behind this phenomenon; this holds for how both whistleblowing and the recipient are presented inside the organization.

In terms of wrongdoing and its relevance, higher organizational transparency (for instance revealing to the employees basic and clear information about their organization and its profits/losses) could be exploited to make the *dependence* leverage as effective as possible in order to make people aware about the effect in concrete terms of any witnessed (and not reported) illicit behavior.

A theme that has already been investigated but that needs further research regards the impact of the "bystander effect": as the presence of other witnesses decreases the individual perceived responsibility and consequently the propensity towards reporting, it would be interesting to test whether this trend is confirmed when the number of witnesses changes and in which direction.

In terms of residual topics, if we assume again that incomplete information holds, providing information about the current legislation could be an effective way to stimulate active behavior by those individuals who are inclined to report but just missed some fundamental knowledge.

Finally, as already mentioned above, replication studies that take inspiration from the current literature are fundamental to give definitive light to specific issues; particular added value would derive from the implementation of the technical suggestions of paragraph 5.2, and the analysis of controversial results. Additionally, another dimension for future research could be to replicate the study of a certain mechanism in public sector contexts to test its external validity.

The relevance of filling the aforementioned gaps lies on the fact that improved and optimized policies would stimulate internal witnesses, given that in the great majority of the cases employees know a myriad of wrongdoings that already affect the organization's performance (i.e. in terms of productivity, costs...). Finding ways to convince such agents to report would be beneficial not only from an ethical perspective, but would bring concrete consequences also in economic terms for the entire community.

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7. Appendix

Table 2 expanded

	public sector	public sector replication	undefined contributions	private sector replication	private sector
whistleblower		Buckenmaier et al. (2018) Jones et al. (2014) Schikora (2011)	Lowry et al. (2013) <i>Strikeleather</i> (2016) Waytz et al. (2013) Zhang (2008)	Heumann et al. (2015) Oelrich (2019)	Arnold and Ponemon (1991) Kaplan (1995)
report recipient		Hopman and van Leeuwen (2009)	Jenkel and Haen (2012) <i>Kaplan and Schultz</i> (2007) Lowry et al. (2013) <i>Mao and DeAndrea</i> (2019)	Oh and Teo (2010)	Andon et al. (2018) Berger et al. (2017) Hunton and Rose (2011) <i>Kaplan et al. (2009)</i> <i>Kaplan et al. (2011)</i> Lee et al. (2018) <i>Rose et al. (2018)</i> Seifert et al. (2010) Seifert et al. (2014) Wilson et al. (2018) <i>Zhang et al. (2013)</i>
wrongdoer		Henningsen et al. (2013) Miceli et al. (1991)	Robinson et al. (2012)		Boo et al. (2016) Brink et al. (2018) Kaplan (1995) <i>Kaplan et al. (2009)</i> <i>Kaplan et al. (2010)</i> O'Brien et al. (2018) Robertson et al. (2011) Taylor and Curtis (2013)

Table 2 expanded (continued)

	public sector	public sector replication	undefined contributions	private sector replication	private sector
wrongdoing			Feldman and Lobel (2008) Gino and Bazerman (2009) Lowry et al. (2013) Robinson et al. (2012)	Heumann et al. (2015)	Ayers and Kaplan (2005) Brink et al. (2013) Brink et al. (2015) Brink et al. (2015b) Brink et al. (2017) Kaplan et al. (2009) Kaplan et al. (2010) Kaplan et al. (2011) Lowe et al. (2015) Scheetz and Wilson (2019) Shawver et al. (2015) Smith et al. (2001)
organization		Hopman and van Leeuwen (2009) Jones et al. (2014) Liyanaarachchi and Adler (2010)	Chen et al. (2017) Choo et al. (2019) Gino and Bazerman (2009) Jenkel and Haen (2012) Lowry et al. (2013) Makowsky and Wang (2018) Robinson et al. (2012) Stikeleather (2016) Young (2017) Zhang (2008)	Bhal and Dadhich (2011) Liyanaarachchi and Newdick (2009) Oh and Teo (2010)	Arnold and Ponemon (1991) Boo et al. (2016) Brink et al. (2013) Brink et al. (2015) Brink et al. (2018) Dalton and Radtke (2013) Guthrie and Taylor (2017) Huntton and Rose (2011) Kaplan et al. (2012) Lowe et al. (2015) Mayer et al. (2013) Scheetz and Wilson (2019) Seifert et al. (2010) Seifert et al. (2014) Smith et al. (2001) Taylor and Curtis (2013) Xu and Ziegenfuss (2008) Wainberg and Perreault (2016) Zhang et al. (2013)
residual	Miceli and Near (1989) Miceli et al. (1999)	Buckenmaier et al. (2018) Schikora (2011) Serre (2012)	Apesteguia et al. (2007) Bigoni et al. (2012)	Heumann et al. (2015) Oh and Teo (2010) O'Leary and Pangemanan (2007)	Feldman and Lobel (2010) Lee et al. (2018)

Chapter 2: Innovation in the whistleblowing context: looking for effective channels to stimulate active behavior in the public sector

Abstract¹

One of the main weaknesses of whistleblowing policies is that they are not effective in inducing the witnesses to report wrongdoing. Previous literature had already suggested how elements like the fear of retaliation in all its facets or the legislative apparatus play a relevant role. Nevertheless, there are still no studies in the public sector that exploit an experimental design to take into account the role of individual awareness about the consequences in concrete terms on the personal propensity towards blowing the whistle.

Through a survey experiment applied taking as reference the public sector employees of the city of Milan, I delivered a questionnaire asking about whistleblowing propensities as well as the most relevant influencing factors when it comes to report an illicit behavior. I randomized the framing of some previous additional information about the economic wastes due to non-reported behaviors, as well as the framing related to potential gain/losses from a social perspective, in order to identify which is the most effective combination that increases the individual attitude towards reporting wrongdoing. At one side, it permits to test whether these two types of content actually affect the individual's behavior towards the phenomenon; at the other one, the positive and negative framings of the messages allow to test the relevance of the Prospect Theory in this context.

In terms of policy implications, this contribution stresses how information and its framing can play a relevant role, effective as a well-developed legislative apparatus but at significantly lower economic and political costs.

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1. Introduction

The concept of “blowing the whistle” is quite established and topical, both in the academic literature and in the current Public Administration debates. As already shown in the introductory chapter, it refers to the activity of reporting illegal behaviors that take place in the working environment; it is not limited to corruption phenomena (even though the term was originally born in this context) but includes also an array of illegal behaviors, that range from absenteeism to other types of frauds and wastes.

The reason why whistleblowing has gained so much attention lies on the fact that these misconducts (if not reported) are relevant not only from an ethical point of view, but also because they bring very concrete economic consequences. The Association of Certified Fraud Examiners highlights how the average firm loses 5% of revenue to fraud annually, amounting to approximately 4 trillion dollars worldwide (ACFE, 2018a); for this purpose, whistleblowers are traditionally considered a fundamental channel through which get in touch with such illicit behaviors (ACFE, 2018a): according to the periodical reports of the ACFE, they are the most important source of detections, as in 40% of the cases misconducts are discovered by tips (percentage that increases to 46% in the Western European countries; ACFE, 2018b) and in 53% of such cases tips are provided by employees of the victim organizations. This huge role played by single internal whistleblowers and the magnitude that their behavior has on the society as a whole explains why the main data presented in this introduction refers to the consequences of misconducts at an aggregate level, although here the main focus specifically relates to the consequences of (not) blowing the whistle for the reporting individuals.

Another point, raised by Stikeleather (2016) and Andon et al. (2018), highlights how whistleblowers can be useful not only to uncover already existent misconducts, but also to actively prevent potential future fraudulent behavior, given that workers many times own private

information about internal misconduct that, if shared, would enable the employer to recover losses and mitigate future harm to the organization. If we shift the attention to the Italian panorama, Unimpresa (Scipione, 2014) estimated the costs of corruption at approximately 10 billion of euros per year, while Confindustria (the National Federation of Italian Industries) estimated the costs of absenteeism at 3.7 billions of euros (Labartino and Mazzolari, 2013). Although these examples refer to just some specific misconducts, they give a flavor of the overall magnitude that the sum of these illegal behaviors can have if not reported. Also in comparative terms, the yearly reports of Transparency International (2018) highlight the salience of this issue, as in terms of corruption phenomena Italy ranks only 54th in the world and 26th in Europe. Given that the amount of resources devoted to the fight of these phenomena is typically not sufficient, it becomes even more fundamental to study the determinants of whistleblowing, in order to improve the effectiveness of this instrument and take advantage of the honest civil servants' collaboration.

This contribution departs from the determinants and the channels that influence the choice of whether to report or not; through a survey experiment conducted involving the public employees of Milan, it analyzes the relevance that a higher degree of awareness about the phenomenon can have on the individuals' decision. The intuition is that low levels of reporting (and low propensity in general) could also depend from the fact that there exist individuals who would be prone to report, but they miss some essential information about the actual relevance in concrete terms, as it is reasonable to assume that common and complete information may not hold in daily life situations. This experiment precisely aims at reducing this information gap, delivering some pieces of information to verify if this strategy (or, at least, these messages) fosters the individuals' whistleblowing propensity and their real behavior in practice. A higher degree of transparency related to the consequences of reporting/not

reporting is expected to positively affect the problem of limited knowledge by public employees. Section 2 will present the current literature on whistleblowing issues that relate to the main pillars of this study (what are the individual processes that shape her own propensity to blow the whistle; how delivering information and its framing affect the subjects' attitudes), in order to highlight what has already been done and what is missing.

Building on that and on the main gaps emerged from Chapter 1, it is possible to briefly anticipate what are the novelty aspects of this article:

1) although there exist articles that empirically deal with whistleblowing in the Public Administration context (typically, exploiting the Merit System Protection Board surveys), only in a few cases the authors did it through experimental designs, randomizing their sample to deliver different treatments. Given that, among the different sectors, the Government and Public Administration one is the third most affected by misconducts in absolute terms and that whistleblowers are the most important source of detections (ACFE, 2018a), the need for more evidence in this field is absolutely relevant;

2) linked to point 1), there is an even more marked lack of contributions that directly involve public employees in their experiments. Given that experimental designs applied to the whistleblowing context either relate to the private sector or try to replicate public settings through lab experiments (involving mainly citizens or students), this study contributes to shed light on the behavior of public employees in this delicate framework;

3) another improvement relates to the involvement of the public employees of a big Italian municipality (with 1073 responses overall), overcoming the typical small samples limitation that characterizes the whistleblowing experiments, and that limits the reliability of the findings;

4) for what concerns the content, the treatments under analysis are unprecedented in the Public Administration and Whistleblowing experimental literatures, as they focus on the relevance of perceived

personal economic and psychological consequences of not reporting illegal behaviors, going beyond the implementation of standard financial incentives schemes. Moreover, analyzing the impact of information diffusion is particularly relevant because, with respect to the categories of determinants presented in Chapter 1 (Near and Miceli, 1995), its scarcity can relate to almost all of them, which means that the structure of this study could be exploited to test the relevance of other pieces of information;

5) also the presented scenario is totally novel; with respect to the classical cases presented in the whistleblowing literature, strongly focused on misbehaviors linked to the accountancy world, its main advantage is that it presents a case common enough to be easily understood and in which people with different socio-economic background and with different jobs can deeply identify with;

6) in terms of dependent variables, this study gets closer to the *real* individual behavior towards blowing the whistle, asking to the respondents not only their propensity but also what shaped their decision.

The remainder of the article is structured as follows: Section 2 presents the current state of the art; Section 3 develops the hypotheses that are going to be tested; then, the paper moves to the description of how the experiment is built, the sources of the dataset, the descriptive statistics and the results (Section 7). The chapter ends with the implications of the findings and some suggestions for future research.

2. Theoretical background and literature review

Chapter 1 illustrated how whistleblowing has been treated through experimental designs; drawing on that chapter and on other theoretical and empirical contributions, it is possible to elaborate a bit more, to better frame this experiment in the current literature.

Departing from the main theories that explain the whistleblowing phenomenon and the witnesses' propensity to expose themselves, the current experiment takes as reference the Model of Discretionary Reporting presented by Graham (1986) and successively developed by Schultz et al. (1993) and other scholars (e.g. Kaplan and Whitecotton, 2001). According to this model, the choice of reporting wrongdoing is a function of (1) perceived seriousness of irregularity, (2) attribution of personal responsibility for reporting and (3) perceived personal cost of reporting. An important feature, consistent with other models which present whistleblowing as a prosocial behavior (Dozier and Miceli, 1985; Miceli et al., 1991; Near and Miceli, 1983), is that the whole process starts when the witness is aware about the fact that a "questionable act" took place.

Perceived seriousness is related to both objective characteristics of the situation and the individual's tendency to exaggerate or minimize the severity of the act (Graham, 1986). Additionally, it may depend on the organizational culture (Dirsmith and Covalleski, 1985; McNair, 1991) and group norms (Hooks et al., 1994). In terms of *personal responsibility*, it may arise because it is expressively prescribed by their organizational role (Miceli and Near, 1984), or because of their own personal sense of social responsibility. Referring to *personal costs*, which is the focus of this chapter, the main ones typically relate to fear of retaliation from others in the organization (Graham, 1986). As Ponemon (1994) states, "*the nature and extent of the retaliations or sanctions imposed by management or co-workers against the whistleblower is perhaps the most significant determinant to the prospective whistleblower's decision in the communication of organizational wrongdoing.*" Other main perceived and opportunity costs can relate to loss of peer approval, job transfers, low performance ratings, denial of pay increases and termination of employment (Curtis, 2006); also psychological costs may be relevant (e.g. lack of self-esteem that reduces one's confidence that his or her actions could stimulate organizational change).

Many scholars took advantage of the Discretionary Reporting model to interpret how the whistleblowing attitudes are shaped. Among them, it is possible to mention the most relevant ones who implemented it in an innovative way.

Focusing on the evidences about perceived personal costs and going in chronological order, Kaplan and Whitecotton (2001) expand the model by Schultz et al. (1993), including the role of commitment to the accounting profession as a fourth influencing channel; their results are in line with the original hypotheses. Ayers and Kaplan (2005) show how actually personal costs are significantly associated with reporting intentions and, although personal costs for the anonymous reporting channel are lower than the normal reporting channel, reporting intentions are similar across the two. Curtis (2006) applies the Schultz et al. (1993) model to analyze whether mood influences the likelihood of reprisals and the opportunity costs of dissent; more precisely, *“less confidence in the ethical nature of the organization may increase fears that it may seek to hide the problem or even that the organization may condone the unethical activities, which would mean silencing the whistleblower”*. The study finds that the negative impact of personal cost on reporting intentions is significant, although it does not work as a mediator of mood. Kaplan and Schultz (2007) focus their attention on how the presence of an anonymous reporting channel decreases the personal costs, as the probability of suffering retaliation or other adverse outcomes decreases; this, in turn, would lead to a preference towards anonymous reporting channels versus a non-anonymous ones.

More recently, Dalton and Radtke (2013) aim at studying how Machiavellianism affects whistleblower behavior, investigating whether the three main factors mediate the relationship. In doing so, they consider how not only costs but also perceived benefits of reporting wrongdoing (i.e. promotions, stopping an illegal activity, preventing harm, etc.) should be included in the analysis, as they positively influence whistleblowing

intentions. Their results show how actually Machiavellianism indirectly affects whistleblowing intentions through perceived benefits.

Another subfield that it is interesting to present for the purposes of this chapter relates to those contributions that exploit the Prosocial Behavior Theory (e.g. Brewer and Selden, 1998; Dozier and Miceli, 1985; Cho and Song, 2015; Caillier, 2017) to interpret the individual decision to report as a (more or less) conscious “cost-benefit analysis”, where individuals evaluate whether the overall advantages from reporting outweigh the overall advantages from non reporting.

The main contribution that suggested how this approach could explain the individual behavior in the whistleblowing context is the one by Dozier and Miceli (1985), with their Prosocial Organizational Behavior model. Their model, further refined by Near and Miceli (2011) and at least partially compatible with Graham (1986) and Schultz et al. (1993), presents the decision to blow the whistle as a series of rational steps, in which agents: observe the questionable act; label it as a wrongdoing; react to that and decide what to do, assessing and weighting the costs and benefits for each potential scenario. Miceli and Near (1992) highlighted how the decision to report may also depend on the evaluation of “*the status of the wrongdoers or their ability to exact revenge*” versus the benefits from taking action, resulting in an active behavior when such benefits outweigh the costs. Gundlach et al. (2003) show how the decision to blow the whistle is affected by individuals' attributions and responsibility judgments for wrongdoing, as well as their cost-benefit analyses of acting. Their behavior is presented as a “*subjectively rational decision process in which individuals exert cognitive energy to process information to determine the best course of action*”. Keil et al. (2010) draw on Gundlach et al. (2003) as well, proposing that individuals holistically weigh the perceived costs and benefits, and that such process mediates the relationship between whistleblowing factors and whistleblowing intentions. Finally, Dasgupta and Kesharwani (2010) consider in their theoretical model how also

incentives can influence whistleblowing behavior and affect the agents' cost-benefit analysis. According to them, financial rewards can positively influence the whistleblowers' dilemma, balancing the potential costs derived from any form of retaliation. Literature on the role of financial incentives in the whistleblowing context is quite established (Xu and Ziegenfuss, 2008; Feldman and Lobel, 2010; Oh and Teo, 2010; Brink et al., 2013; Boo et al., 2016; Berger et al., 2017; Chen et al., 2017; Guthrie and Taylor, 2017; Andon et al., 2018).

An important caveat that has to be underlined regards the fact that the relationship between the cost-benefit analysis and the final decision about whether blow or not the whistle could be affected by agents' emotions, and so it cannot be described as "purely rational" (Miceli et al., 2001; Gundlach et al., 2003): feelings like anger and perceptions of unfairness play a relevant role as well, and work as positive antecedents towards whistleblowing (Jones et al., 2014). This is in line with what previously presented about the potential role of individual mood (Curtis, 2006).

Among the elements that influence the individual costs (and benefits; Dalton and Radtke, 2013), this chapter analyzes the role of information provision and the way in which such information is given, according to the fact that the classical complete information assumption is too limiting and does not hold in real life frameworks, in particular in contexts like the whistleblowing one. In line with this view, Chen et al. (2017) suggest that periodically spreading statistics would help firms (and institutions in general) in fostering descriptive norms that are more supportive of whistleblowing: for instance, they could report to employees that the corporation has investigated whistleblower complaints or disseminate actual information that highlights how more employees report misconduct than people may think.

Considering the theories that confirm how processing information can influence the individual behavior, the persuasion models particularly fit with this context. The Elaboration Likelihood Model by Petty and Cacioppo

(1986) predicts that the characteristics of the message and its recipient play a relevant role; of course, not all the types of information have an effect, but only those that originate from a credible source and that effectively put into relationship the consequences and, for this purposes, the act of blowing the whistle. The model by Bhattacharjee and Sanford (2006) confirms that external information processing makes individuals change their attitude and/or behavior; again, this happens when this new information is powerful enough to let them reexamine prior-held beliefs.

The aforementioned concepts of “credibility” and “powerfulness” imply that not only the content of the message matters, but also how it is framed contributes to its final effectiveness. In this framework we can take advantage of the Prospect Theory, according to which penalty-based incentives can be much more powerful with respect to reward-based ones, as individuals tend to weigh losses more than gains (Kahneman and Tversky, 1979; Tversky and Kahneman, 1981). If we apply the same reasoning to the whistleblowing context, this would imply that penalty-framed messages increase whistleblowing more than a reward-framed ones.

Current literature already showed how actually not only the content but also its framing matters; specifically, experimental studies focused their attention in framing either concrete incentives (rewards vs. penalties – see Boo et al., 2016; Chen et al., 2017) or messages (Young, 2017; Oelrich, 2019). For what concerns the messages, Young (2017) –building on Fiol (1994)– presents positively-framed messages as those that “*describe the positive consequences that arise from engaging in the behavior that is the subject of the message(s)*” while, reversely, the negatively-framed ones describe “*the negative consequences that arise from engaging in the behavior that is the subject of the message(s)*”; neutral frames do not present any consequence, and “*are often associated with sources that are not deemed to be of acceptable credibility (hearsay evidence, anonymous source, etc.)*”. Chen et al. (2017) –elaborating on

Mulder (2008)– highlight how the framing can bring with it also changes in the individuals' perception of the phenomenon: in fact, a negatively-framed message or action (e.g. punishment if not reporting) communicates that whistleblowing is a duty, while a reward leads to the belief that reporting is not mandatory or necessary.

3. Hypotheses testing

Taking as reference the aforementioned streams of literature (Theory of Discretionary Reporting, role of information delivery and Prospect Theory), this experiment wants to test whether providing some pieces of information fosters individuals' attitude towards reporting and their *real* behavior in practice (see Section 4). Before the hypotheses development, some attention has to be put on the content of the information that is going to be delivered: as mentioned in the introduction, the aim is to check the effectiveness of increasing the overall degree of awareness about the whistleblowing phenomenon, according to the supposition that there exist individuals who would be willing to report, but they do not because they miss some essential information about the actual relevance in concrete terms (incomplete information assumption). In particular, the information that I deliver regards the concrete consequences for the misconduct witnesses, framed either as costs if they do not report or benefits if they do report. The choice of this specific content can be explained from both academic and practical perspectives: in the first case, Young (2017) highlights how the delivery of arguments able to connect the act of engaging or not engaging in a behavior to its consequences successfully stimulates the potential whistleblower in taking action; in more practical terms, public employees are already informed by their Public Institutions about the other relevant aspects (like how or what to report), while information about the *why* is instead often missing. Low levels of reporting (and low propensity in general) could depend also from the fact that there exist individuals who would be prone to report, but

they miss some essential information about the relevance in concrete terms.

For what concerns the content, I build upon Gundlach et al. (2013), who claim that, when individuals witness some misconduct, in their own internal process they consider the "*economic and psychological costs and benefits of acting*". While the *economic* consequences relate to productivity and money wastes issues due to wrongdoing that translate into different magnitudes of taxes at the individual level, the *psychological* ones refer to the effects on the public employees' quality of their working environment. As agents' evaluation compares both economic and psychological costs (and benefits) of reporting versus non reporting, the content of the treatments regards the consequences at the individual level from this perspective.

Putting all together the previous pieces of literature that relate to the role of providing information on the individual attitude towards reporting, we should expect that a message, focused on the concrete consequences from (not) reporting (Petty and Cacioppo, 1986), if powerful enough to modify the prior beliefs (Bhattacharjee and Sanford, 2006), should positively affect the overall balance between the individual perceived costs and benefits, either lowering the costs or increasing the benefits. Then, the effect of such treatment should be as follows:

- for those individuals who were already willing to report, the message should further improve their balance, making them even more prone to blow the whistle;
- for those who instead evaluated the costs from reporting as higher than the benefits, in some cases the information will not be effective enough to shift the overall balance from negative to positive, and those individuals will keep being reluctant to expose themselves; in other cases, the message will be able to change from negative to positive the global individuals' evaluations, transforming them from passive to active subjects.

This process is in line with Chen et al. (2017), both in terms of theoretical suppositions and findings. Then, we can claim that:

Hypothesis 1: *On average, the individual attitude towards reporting will be higher for those who receive a message about their concrete consequences with respect to those subjects who do not receive any message.*

Moving from the content to the framing dimension, according to Prospect Theory and its seminal works (Kahneman and Tversky, 1979; Tversky and Kahneman, 1981), we should expect that a negatively-framed message should be more effective in shaping the individual behavior with respect to a message with the same content but framed positively. Transposed into the whistleblowing context, a message presented as costs from non reporting should increase the individual propensity to report more than a message in which gains from reporting are showed. The findings by Chen et al. (2017) go in this direction, as they show how incentives framed as penalties from not reporting are more effective than rewards from reporting: more specifically, this result holds when there exist also strong descriptive norms that encourage internal whistleblowing; even when such norms are weak or do not exist, the negative framing is effective as least as the positive one. An important caveat of this study is that it focuses just on economic incentives, excluding from the analysis the psychological aspects behind the individual decision.

Also the results from Boo et al. (2016) are in line with what expected, with penalty-based career-related incentives that are more effective than reward-based ones, consistently with the preference towards avoiding losses than obtaining benefits; nevertheless, the incentives they provide are at a career level (dismissal versus award) and the information they deliver does not regard a clarification of the consequences at the status quo situation, but adds new rules (in line with Chen et al., 2017, about the

interpretation of whistleblowing as a duty or as something good but not mandatory).

In a more recent experiment, Oelrich (2019) shows that participants have a stronger reporting decrease when faced with a loss prospect, compared to the propensity increase when the message is framed as a gain of the same value; the limitation of this study, similarly to Chen et al. (2017), is that also in this case the author focuses specifically on the monetary outcomes and on which values would make the respondents indifferent between reporting and not reporting.

At the light of the cited results and the aforementioned theory, it is possible to sum up the expectations with the following two hypotheses:

Hypothesis 2a: *On average, exposure to messages highlighting the economic costs increases individual propensity towards reporting more than messages highlighting the economic benefits*

Hypothesis 2b: *The higher effect of messages highlighting the economic costs on individual propensity towards reporting will be stronger for messages highlighting the psychological costs and weaker for messages highlighting the psychological benefits.*

In order to elaborate a bit more on the expected results, we can draw the following 2x2 matrix, in which the four treatments (T1, T2, T3 and T4) present the same economic and psychological messages, framed either as costs (if they report) or benefits (if they do not).

Table 1 – *Treatments*

	Social Benefits	Social Costs
Economic Benefits	T1	T2
Economic Costs	T3	T4

Then, we would expect a higher propensity towards reporting by those subjects who received both negatively-framed messages (T4), while the

lowest one should be of those belonging to the treatment T1. For what concerns T2 and T3 no precise hypotheses can be stated, as literature pointed out how in particular economic incentives (Xu and Ziegenfuss, 2008; Brink et al., 2013; Boo et al., 2016; Guthrie and Taylor, 2017; Berger et al., 2017) have heterogeneous effects, while psychological messages (Jones et al., 2014) should positively influence the individual final decision to report, while there is still no literature that compares the effectiveness of the two types of content. Of course, these hypotheses apply when confronting just the four treated groups.

Nevertheless, Chen et al. (2017) also highlight how positive framing –and in particular rewards for reporting– may induce greater trust and perceived fairness than penalties. If this argument happens to be important enough, then rewards could result more effective than penalties or, at least, confound the effects predicted by the Prospect Theory.

In addition to that, the relationship between the received message and the individual attitude towards blowing the whistle could be not (only) direct. Some contributions highlight how one of the main factors that influence individuals' behavior is their attitude towards risk: *ceteris paribus*, a risk averse subject has a lower propensity towards reporting with respect to a risk neutral individual. In this context, it could be the case that an increase in the overall awareness about the concrete consequences changes the individual's perception of risk in this context, then positively fostering her attitude when it comes to decide whether to report or not (Venkatraman et al., 2006; Lowry et al., 2013; Wainberg and Perreault, 2016).

Hypothesis 3: *the effect of the treatments on the individual propensity towards reporting is positively mediated by the subjective attitude towards risk in the whistleblowing context.*

4. Methods

In order to test the aforementioned hypotheses the chosen methodology consists in an experimental design; the total sample is divided into one control (to test for Hypothesis 1) and four treatments groups, as showed in Table 1 (to test Hypotheses 2a and 2b).

The reason behind this approach derives from the advantages that it brings in terms of causality between the treatments and the outcome of interest: thanks to the random assignment of the individuals to one of these groups, we can claim that the five subsamples are comparable and differ only for the treatment received. In any case, a set of demographic questions has been asked to check and eventually control for that. In addition to that, it is useful to recall what already asserted in Chapter 1 to justify the focus of the previous review on experimental instead of generic empirical approaches: given that both share the problems linked to the limited reliability of the dependent variable (attitude towards reporting, typically biased by social desirability issues), empirical studies that analyze the impact of whistleblowing antecedents on the real behaviors of whistleblowers would be biased for different reasons (data available on countries or single organizations who do not allow for anonymous reporting channels may share very specific characteristics and ethical values). Then, even though experimental approaches cannot easily manipulate real behavior, their results can be associated to causality relationships. For what concerns the dependent variable issue, further information about its construction will be provided in the Data section.

The data is collected through a online survey addressed to the public employees of Milan (see Appendix A for the general structure of the questionnaire); as the Municipality periodically provides to their employees information about the whistleblowing phenomenon (in the pay-slip and through professional updating courses), I assume that they share common –although not complete– knowledge about the overall phenomenon. All the items inside the questionnaire are the same across

the groups: the element which differentiates a treated group from the other ones is the pre-test information, provided to the individuals as a sort of introductory section (see Appendix B, translated into English). The content of the treatment describes the individual consequences both in economic and psychological terms.

As previously showed, the treatment structure follows a 2x2 scheme with four treatment groups (the same two-parts message with different framings), plus a control group which did not receive any preliminary information. The dependent variable (the individual attitude towards reporting wrongdoing; see Appendix D) is measured through a classical scenario evaluation, in which respondents are asked about the perceived seriousness of the presented behaviors (Appendix C). A further specification, presented in paragraph 7.4., departs from the traditional way of measuring the individual propensity, going more in depth and trying to get closer to the *real* intentions of the respondents: for those who claimed the maximum degree of reporting, there is the possibility to concretely write what would be their report; then, the dependent variable of paragraph 7.4. considers as whistleblowers not those who claimed that they would report but just those who actually reported something. Of course, this does not mean that these individuals would report also in real life, but the effort they put in the task can be considered as a better proxy of their actual behavior with respect to the self-declared intention to blow the whistle.

The scenario, which takes inspiration from real reports and is common for everyone, presents a case of absenteeism. The choice of this specific misconduct is at least twofold:

- it is a very frequent misconduct, at least in the Italian panorama; in addition to that, among the most common illicit behaviors, this one is diffused at any level, both among officials and low-tier employees. Those elements help all the kind of potential readers to better identify themselves with the scenario, providing more realistic responses with respect to the exposition to cases which are very

common but only in some specific contexts (e.g. corruption, financial frauds);

- in addition to that, another element that makes absenteeism even more suitable for these purposes is that it lies in a sort of “gray area”: given the marked cultural heterogeneity that characterizes the Italian panorama, depending on the contexts it is seen differently, and its gradualness in terms of diffusion influences also its acceptability (Gino and Bazerman, 2009). Also how this phenomenon is framed in the Italian panorama (the wrongdoers are named “furbetti”, which means cunning, but in an ambiguous way) could help to increase the heterogeneity about how people may interpret this type of misconduct. At the other side, considering a “hard” and socially unaccepted misconduct, like clear cases of corruption or sexual harassment, would have let respondents claim that they would have reported that behavior for sure, at least for a matter of social desirability.

5. Data

The data used for the analysis derives from an online questionnaire, which has been delivered by e-mail to part of the public workers of Milan (overall N=14771) between April and June 2019 (50 days, with a reminder after 20 days). The questionnaire has been previously tested and discussed many times with some Municipality managers plus a small population with very heterogeneous background (N=22), to collect feedbacks 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. The delivery aimed at collecting data for what concerns both the individuals’ propensities and drivers towards whistleblowing, as well as their personal characteristics. The assignment of the individuals to a specific treatment followed a randomization process, in order to obtain balanced groups for each treatment. The overall responses were 1073, which corresponds to the 7.26% to the total

population of public employees; nevertheless, depending on the jobs and duties, approximately only half of them owns an official e-mail account (@comune.milano.it) and then has been reached by the survey. There is no data about the precise number of recipients, but it is reasonable to estimate the overall response rate at around 15%.

Some of the 1073 questionnaires had to be excluded because of data incompleteness (abandon of the survey before its completion): in 210 cases the subjects just opened the link and started the questionnaire, but they left it before arriving to the treatment and scenario stages, reducing the sample to 863; further 60 individuals left before giving indications about their attitude towards risk, leading to 803 complete questionnaires available for the analysis.

In terms of overall response rate, the results can be considered already satisfactory: the pre-survey target rate, hypothesized by local managers with relevant previous experience inside the Municipality of Milan, was set at 10%. In addition to that, the 15% of responses has been reached although the delivery period was quite critical: due to other external constraints, the online questionnaire has been distributed on April 19th, two days before Easter; this entails that the number of compiled questionnaires may have suffered from the close presence of Easter, the national holidays of April 25th and May 1st and the fact that both of these were located in working days (respectively, on Thursday and Wednesday), which may have facilitated further holidays. In order to overcome this problem, the aforementioned reminder has been sent one week later the last holiday (on May 8th). Another factor that could have positively affected the amount of responses is the active engagement of local managers, that advertised in advance the delivery of the questionnaire and encouraged the participation (highlighting the anonymity of the survey).

Referring to any potential ethics-related issues, due to the great sensitivity of the topic many precautions have been implemented before delivering the final version of the questionnaire to the respondents.

First of all, the draft of the survey has been repeatedly and adequately adapted according to the indications and suggestions of the local public managers, in order to guarantee not just formal but also substantial anonymity (e.g. removing the question about the birth province, clustering age in 5-year brackets...); then, a further step has been the evaluation and subsequent approval from the Bocconi IRB. To properly protect and show their rights, before starting the questionnaire respondents were presented the informed consent and had explicitly to accept it to continue; in addition to what stated in that document, the very introductory statements of the survey further underlined how their anonymity would have been preserved, how they could have abandoned the questionnaire at any time without being forced to conclude it and how, at the light of this, no punishments were adopted in case of any missing or incomplete participation.

No deceptions were included in the questionnaire, and no compensation was provided to the participants: 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 particular compensation.

5.1. Dependent and independent variables

One of the main issues in the whistleblowing literature is to measure the individual attitude to report and what would be her real behavior if she witnessed some wrongdoing in her working environment. As shown in Chapter 1, the great majority of the previous experiments in this field tested the respondents' propensity, presenting them a fake scenario and then asking what they would do, or what they think the protagonist would do (in order to limit potential social desirability biases). Nevertheless, such approach has two main limits: the first one relates to the fact that,

although measuring the likelihood to report through a Likert scale (typically with 5 options, ranging from “very unlikely” to “very likely”) is the most common instrument, it spreads into n-items something that in the end is reflected into a dichotomous decision (report/not report); the other critical aspect relates to the fact that it measures the respondents’ attitude towards a scenario that is already presented as fake since the beginning and deals with some issues strictly linked to the accounting world, limiting the individual personal involvement in imagining what she would do in that situation.

In order to overcome, at least partially, these limitations, the scenario included in the survey takes inspiration from real reports that describe a case of absenteeism, a very common misconduct in Italy. Both elements help the reader to get involved into the presented situation. In order to avoid potential biases derived from the fact that they read something already reported, the text specifies that no information about the authorities’ decision is available, implicitly underlying how it could also be the case that the behavior does not need to be reported. The text of the scenario is presented in Appendix C.

At the light of this, the dependent variable presented in Appendix D aims at categorizing the answer as a dichotomous variable (e.g. Chen et al., 2017), but at the same time trying to extract more realistic intentions with respect to standard 5-scale Likert questions. The possible answers are five (still ordinal), but instead of ranging from “very unlikely” to “very likely” reflect different justifications behind a “yes/no” decision to report. Specifically, the scale ranges from items like “*there is nothing to report*” and “*there is something that should be reported but it is not serious enough to expose myself*” (which concretely correspond to “not reporting”) to the fifth item “*there is something to report and I would do it immediately*” (that clearly represents an active involvement). In this way it is possible to get closer to the real intentions of the respondents, exploiting a higher variance in the responses and the individual

motivations that would be lost with a standard dichotomous variable. Then, it is possible to group these items in a successive moment into a categorical yes/no dummy.

The main independent variables of interest are the dummies that relate to the delivery of the messages about the consequences and the individual risk aversion. In the first case, the two dummies are equal to 1 if the economic or psychological messages are framed as costs from non reporting, and 0 if they present the information as gains from reporting. Risk aversion (see Appendix E) is measured through a continuous variable that ranges from 0 to 10, in line with previous literature (Bonin et al., 2007; Pfeifer, 2011; Dohmen et al., 2010, 2011; Dur and Zoutenbier, 2014, 2015).

Due to survey-length restrictions imposed by the Municipality managers to keep the questionnaire as short and simple as possible to encourage participation, no specific manipulation checks have been included in the questionnaire.

6. Descriptive statistics

Table 2 describes the main peculiarities of the individual characteristics. Among the covariates, *sex* is a dummy variable (0: female; 1: male), *education* ranges from 1 (less than high-school diploma) to 5 (PhD or similar), *job position* is a dummy (0: employee; 1: manager), *age* and *work experience* are clustered into brackets for privacy reasons –as requested by the Municipality of Milan– while *front* and *back office* are dummies; those who have a mix of front and back office activities are the 40.5% of the total sample ($1-0.151-0.444=0.405$).

Table 2 – *Descriptive statistics*

Variable	Mean	Std. Dev.	Min	Max	N
self-reported p(WB)	4.057	1.009	1	5	863
scenario p(WB)	3.773	0.830	1	5	863
sex	0.351	0.478	0	1	863
age	50.533	8.602	27.5	65	863
education	2.891	1.112	1	5	863
job position	0.235	0.424	0	1	863
work experience	12.220	4.795	0.5	15	863
front office	0.151	0.358	0	1	863
back office	0.444	0.497	0	1	863
general risk attitude	7.050	2.328	0	10	803
WB risk attitude	6.893	2.379	0	10	803

An interesting feature that emerges from this data relates to the individual risk attitude, as there is a slight decrease in terms of willingness to expose themselves to a risk depending on whether they are witness of an illicit behavior or in general terms. Running the t-test for these two aspects, the higher value of the general risk attitude is confirmed, with a significance at the 5%.

Shifting the attention to the size of the different groups, over the 803 individuals who provided their risk attitude 163 belong to the control group, while the other 640 received one of the four versions of the treatment message. A preliminary analysis of these five groups can be done to test whether the randomization process has been successful or the control and treated groups significantly differ according to some socio-demographic characteristics. Given that none of them is a continuous variable but either a dichotomous (sex, job position, front-office, back-office) or a categorical one (age, education, work experience), the usual one-way ANOVA test cannot be run, as this would violate the normality assumption. An alternative test consists in the Kruskal–Wallis one-way analysis of variance based on ranks, which is a non-parametric method

analogous to the standard one-way ANOVA but that does not need the normal distribution of the residuals (Kruskal and Wallis, 1952).

Table 3 – *Balance checks*

Variable	$\chi^2(4)$	p-value
sex	1.551	0.818
age	1.920	0.751
education	2.292	0.682
job position	2.135	0.711
work experience	4.120	0.390
front office	0.778	0.941
back office	3.997	0.406

The results presented in Table 3 highlight how any of the groups does not differ in a statistically significant way for any of the socio-demographic controls, as witnessed by the high p-values. Then, we can assume that ex-ante the five groups are similar in terms of individual characteristics and that the randomization process performed well.

7. Results

7.1. Test of Hypothesis 1

Table 4 shows the baseline regressions aimed at testing Hypothesis 1, comparing the control group with the treated ones taken together; although such approach does not allow to understand how the specific framings affect the individual behavior it permits to check whether, overall, providing that type of information has an effect with respect to those who did not receive anything at all. The four specifications follow an incremental approach, in which the individual attitude towards reporting is studied as a function of just being treated or not (1), with the addition of the individual risk attitude towards reporting and controlling for their pre-treatment self-declared propensity to report (2), of the individual characteristics (3) and controlling for day and daytime (morning, afternoon, evening) fixed effects, referred to the moment in which

respondents compiled the questionnaire (4). Such method allows us to see whether, including an increasing number of covariates, the coefficients of our interest (the effect of the two-part message) are stable in terms of sign, magnitude and significance.

The pre-scenario individual propensity allows to control for the fact that individuals' decision in the scenario may be affected by their previous self-declared propensity, in the sense that they may declare a reporting behavior just to be consistent with what they claimed before. The day and daytime fixed effects have been included in order to control for some specific timing issues (e.g. during the evening people could be more tired and give a different degree of attention and involvement with respect to those who answer in the morning, and/or people who respond just after the first invitation to participate may differ from those who answer after one week or after the reminder). The variable of our interest is the *Treatments* dummy, which is equal to 0 in case of no messages received and 1 if the subjects received any of the four framings.

Table 4 – *Baseline regressions – OLS specification*

	(1)	(2)	(3)	(4)
Treatments	-0.034 (0.070)	-0.067 (0.064)	-0.073 (0.064)	-0.052 (0.066)
self-reported p(WB)		0.162*** (0.029)	0.167*** (0.029)	0.162*** (0.030)
WB risk attitude		0.100*** (0.012)	0.101*** (0.012)	0.103*** (0.013)
Demographics			✓	✓
Day FE				✓
Daytime FE				✓
constant	3.800*** (0.063)	2.456*** (0.119)	2.549*** (0.245)	2.511*** (0.285)
N	863	803	803	803

The advantage of this simple OLS specification is that it provides an easy and immediate interpretation of the coefficients. The pre-scenario propensity and the individual attitude towards risk in the whistleblowing context are both positive and statistically significant: given their scales (respectively from 1 to 5 and from 0 to 10), it means that *ceteris paribus* the individuals with the highest levels of self-reported propensity and risk attitude and with the lowest levels of both have a difference in their scenario willingness to report of 1.678 over 5 [$0.162*(5-1)+0.103*(10-0)$]. The relevance of these two factors explains the decrease in the constant value between the first and the other specifications; its stability from the second to the fourth regression can be attributed to the fact that the covariates included (individual demographic characteristics and temporal fixed effects) are not statistically significant, and do not influence the individual behavior.

Regarding the variable of main interest, unfortunately it shows a close-to-zero effect in terms of its magnitude, and no significance at all. Then, it seems that providing information about the concrete consequences for the individuals is not enough to stimulate their active behavior.

Although the previous model has the advantage of a simple interpretability, it is not the most appropriate way to test whether information per se has an impact: in fact, as mentioned in paragraph 5.1, the variable that measures the individual behavior is just ordinal, not cardinal. Then, before concluding that Hypothesis 1 is not supported, some arrangements have to be implemented. As the current results are difficult to interpret, I create a new dependent variable building on the previous one: it is dichotomous, with values equal to 1 when the subjects showed an active intention to report and 0 when they claimed that there was nothing to report in the scenario or if they found something, but not serious enough to take action and expose themselves. Given the technical characteristics of this new dependent variable, instead of a standard OLS model a Logit regression has been applied.

Table 5 – *Baseline regressions – Logit specification*

	(1)	(2)	(3)	(4)
Treatments	-0.019 (0.182)	-0.107 (0.213)	-0.103 (0.215)	-0.074 (0.225)
self-reported p(WB)		1.009*** (0.184)	1.082*** (0.189)	1.160*** (0.200)
WB risk attitude		0.352*** (0.042)	0.361*** (0.043)	0.379*** (0.046)
Demographics			✓	✓
Day FE				✓
Daytime FE				✓
constant	0.780*** (0.163)	-2.174*** (0.318)	-1.475* (0.790)	-1.313 (0.958)
N	863	803	803	776

Given the strong correlation between the original ordinal variable exploited in the OLS model and the dichotomous one applied in this specification (0.8219), the similarity in the results is in line with what we could expect. Also in this case, both the pre-scenario attitude and the individual risk aversion in the whistleblowing context have a positive and significant effect on the scenario post-treatment behavior; the dummy that captures the reception of the treatments is still not significant, while the only difference relates to the significance of the constant. The N decrease in last specification is due to the fact that some observations have been removed from Stata for the analysis because they belonged to days with too few observations and no variance.

Due to the nature of the Logit model, the interpretability of the coefficients is a bit more complex: if we take as example the second regression of Table 5, we can compute the probability of reporting of the median respondent (characterized by a pre-scenario propensity equal to 1 and a risk attitude of 7.1) in case she has received or not the message:

$$p(wb)_0 = \frac{1}{1+e^{-(-2.714+1.009*1+0.352*7.1)}} = \frac{1}{1+e^{-1.3342}} = 0.7915$$

$$p(wb)_1 = \frac{1}{1+e^{-(-2.714+1.009*1+0.352*7.1-0.107)}} = \frac{1}{1+e^{-1.2272}} = 0.7733$$

As emerged in Table 4, also here it seems that providing information has a slightly negative effect ($p(wb)_0$ stands for the probability of the control group, while $p(wb)_1$ refers to the treated ones); nevertheless, this 1.82% decrease is driven by a non-significant coefficient, so it is not possible to claim that actually the messages have a negative impact.

These null results could have different explanations (either taken singularly or as a combination of them):

- the first one regards the lack of novelty: it could be the case that the subjects were already aware about the consequences that they face if they report or not, and they already internalized such information in the past; then, the treatment would have been a simple reminder that brings no reactions;
- another explanation, linked to what already presented in the literature review, regards the *powerfulness* of the content (Bhattacharjee and Sanford, 2006): even in case of a new piece of information, if it is not relevant enough to modify the prior-held beliefs then the cost-benefit analysis is not affected, implying no changes in the attitude towards reporting;
- a further aspect regards a lack of credibility in the provided message (Petty and Cacioppo, 1986): 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, it is true that (in particular referring to the economic consequences) no references were provided together with the data; nevertheless this has been an informed decision, in order to not confuse the respondents with some academic sources of difficult interpretation;

- finally, it could also be the case that there has been a lack of efficacy in the distribution channel: from this point of view, maybe a video would have been more involving and the respondents would have better assimilated the message. In this case, the decision to go through the traditional way (written text) has been taken for a matter of coherence with the channels usually exploited by the Municipality of Milan to deliver information (written e-mails, information in the printed version of the pay-slip...).

Unfortunately, there is no data that allows to define the source of this ineffectiveness and disentangle potentially different (even contrasting) effects.

7.2. Test of Hypothesis 2

Moving to the second Hypothesis, according to what presented in the literature review and in its presentation, we expect that negatively-framed messages are more effective than positively-framed ones in exposing a certain piece of information and in influencing the reader's propensity towards whistleblowing; if this holds, the signs of the coefficients related to the treatments should be negative. In fact, in the baseline the messages are framed in a negative way, while when the dummies are equal to 1 the messages present the consequences as benefits from reporting. Also the interaction of the two messages should have a negative impact as well.

The fact that here the analysis is focused just on those who received any treatment explains why the sample is lower than the previous specifications. Given the previous reasoning about the higher appropriateness of the Logit model with respect to the OLS, Table 6 presents the results directly with the first specification. As before, also in this case I applied an incremental approach, to see the evolution of the coefficients of interest with the inclusion of further sets of covariates.

Table 6 – *Baseline regressions – Logit specification*

	(1)	(2)	(3)	(4)
Psychological message	-0.249 (0.228)	-0.538** (0.270)	-0.548** (0.273)	-0.568** (0.289)
Economic message	-0.062 (0.231)	-0.195 (0.274)	-0.203 (0.276)	-0.349 (0.291)
Interaction Psy*Eco	0.567* (0.329)	1.068*** (0.393)	1.104*** (0.398)	1.248*** (0.421)
self-reported p(WB)		0.942*** (0.212)	1.005*** (0.217)	1.111*** (0.232)
WB risk attitude		0.377*** (0.048)	0.394*** (0.050)	0.408*** (0.053)
Demographics			✓	✓
Day FE				✓
Daytime FE				✓
Constant	0.782*** (0.164)	-2.294*** (0.355)	-1.790** (0.900)	-1.844 (1.130)

N	688	640	640	614
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The results that emerge from these regressions provide many interesting insights: in terms of characteristics of the coefficients, the first element that stands out regards the risk attitude and the pre-scenario self-declared propensity and, in particular, the marked similarity with respect to the values found in Table 5; magnitude, sign and significance levels are all very similar, meaning that there are no particular differences between the treatment and control groups in terms of these characteristics. The constant follows the same path as before, with a decrease in magnitude and change of sign as long as risk and pre-scenario propensity are taken into account, and a progressive decrease in its significance.

Regarding the dummies that relate to the treatments and their framing, if we compare the results with the expectations in terms of starting hypotheses, both the economic and social messages are in line with the Prospect Theory: when any of the two messages is framed in a positive way, their effect on the individual attitude towards reporting is negative,

although only the psychological message is statistically significant. Nevertheless, when both treatments are framed in a positive way the interaction has a positive effect, which counterbalances the first two; then, Hypothesis 2 is only partially confirmed. Analogously as before, the probability of reporting the scenario of the median respondent is:

$$p(wb)_{S_1E_1} = \frac{1}{1+e^{-(-2.294+0.942*1+0.377*7.1)}} = \frac{1}{1+e^{-1.3247}} = 0.7900$$

$$p(wb)_{S_0E_1} = \frac{1}{1+e^{-(-2.294+0.942*1+0.377*7.1-0.538)}} = \frac{1}{1+e^{-0.7867}} = 0.6871$$

$$p(wb)_{S_1E_0} = \frac{1}{1+e^{-(-2.294+0.942*1+0.377*7.1-0.195)}} = \frac{1}{1+e^{-1.1297}} = 0.7558$$

$$p(wb)_{S_0E_0} = \frac{1}{1+e^{-(-2.294+0.942*1+0.377*7.1-0.538-0.195+1.068)}} = \frac{1}{1+e^{-1.6597}} = 0.8402$$

where the values refer, respectively, to those who received both messages with a negative framing (S_1E_1), the psychological one as gains from reporting (S_0E_1), the economic one as gains (S_1E_0), and both as benefits (S_0E_0). Nevertheless, the absence of significance of the economic treatment implies caution in the interpretation of such estimates. The reasons behind this evidence could be partially analogous with what already said about the absence of relevant differences between the individual behavior of control versus treated individuals: in terms of powerfulness, it may be the case that the presented consequences were too small in absolute terms to stimulate relevant changes in the individual cost-benefit balances, either in a positive or negative way depending on the framing; regarding the credibility issue, again it could be that the absence of sources may have affected the trustworthiness of the message, making the framing an irrelevant aspect; finally, another hypothesis could be that the message suffered from a not sufficiently clear relationship between causes (reporting) and consequences (economic savings) –as suggested by Petty and Cacioppo (1986)– harming its credibility and then leading to no effects, no matter about its framing.

7.3. Test of Hypothesis 3

The last hypothesis focused on the mediating role of risk attitude: the idea is to see whether the (partial) effect of the treatments on the individual behavior is direct or it is also mediated by the risk attitude. In order to do that, I run a mediation analysis following the Baron and Kenny (1986) approach. As showed in Table 7, the left-hand side represents the first stage, in which the dependent variable is the individual risk attitude in the whistleblowing context; the right-hand side shows the second stage, in which the individual behavior is regressed as a function of the other covariates. Column 1 tests the existence of this mediating mechanism comparing control versus treated groups while column 2 checks the impact of the different framings. The specifications below directly include all the covariates, as in the regressions (4) of Tables 4, 5 and 6. The first stage is computed with an OLS, while the second one through a Logit.

Table 7 – *Mediating role of risk attitude*

DV: WB risk attitude	(1)	(2)	DV: WB behavior	(1)	(2)
Treatments	0.239 (0.184)		-0.074 (0.225)		
Psychological message		0.314 (0.228)			-0.568** (0.289)
Economic message		0.268 (0.229)			-0.349 (0.291)
Interaction Psy*Eco		-0.475 (0.325)			1.248*** (0.421)
self-reported p(WB)	2.190*** (0.162)	2.327*** (0.179)	1.160*** (0.200)	1.111*** (0.232)	
WB risk attitude			0.379*** (0.046)	0.408*** (0.053)	
Demographics	✓	✓	✓	✓	
Day FE	✓	✓	✓	✓	
Daytime FE	✓	✓	✓	✓	
constant	5.996*** (0.733)	6.155*** (0.825)	-1.313 (0.958)	-1.844 (1.130)	
N	803	640	803	640	

The similarity in the results for what concerns the risk attitude, the pre-treatment propensity towards reporting and the constant across the two models (with and without the control group) shows how the randomization process worked properly.

The evidence that emerges from the right-hand side regression is in line with what already found in Tables 5 and 6 in terms of signs, magnitudes and significance. Moving to the effects of the treatments (either separated or as a whole), unfortunately they seem to have no effects in shaping the individuals' risk attitude in the whistleblowing context: interestingly, although the significance is absent, the signs are all inverted with respect to the effects on the actual behavior, suggesting that receiving the information slightly increases their risk attitude (1); according to model (2), this increase seems to be driven mainly when the framing moves from negative to positive, but when both messages are presented as gains from reporting the interaction partially reduces such effect. Nevertheless, the absence of statistical significance does not allow to conclude that the relationship between the treatments and the whistleblowing attitude is mediated by the individual openness to risk.

Considering equation (1), the overall effect of being treated on the final outcome is almost irrelevant, both in terms of magnitude (0.017) and significance (given a standard error of 0.236). Such value is composed by the direct effect of the treatments on whistleblowing behavior (-0.074) plus the indirect effect of the treatments on risk aversion on whistleblowing behavior ($0.239 \times 0.379 = 0.091$, with a standard error 0.070). The computation of the Sobel test (Sobel, 1982) shows how such indirect effect is not significantly different from zero (p-value: 0.199).

Moving to the impact of each specific treatment and their framings (2), it is possible to apply the analogous process to obtain the total effect of the economic message (-0.240), the psychological one (-0.439) and of their interaction when both are framed as negative consequences due to non-reporting (1.054). All of them have been calculated adding the direct

effects of the treatment dummy to the product between the direct effect of risk attitude on whistleblowing behavior with the direct effects of that dummy on risk attitude (indirect effect of the treatment). Running again the Sobel test to analyze the statistical relevance of the indirect effect for each of the components –economic framing, psychological framing and their interaction term– what emerges is a lack of significance referred to the two types of messages taken alone (p-values of 0.432 and 0.147 for the economic and psychological contents) while the effect when both messages are framed as costs from non-reporting is statistically significant at 5% (p-value: 0.016). Then, what can be concluded is that the mediation effect is absent when the control group is compared with the treated as a whole (1), while it is tenuous when we focus only on the treated ones to check if framing matters depending on the content (2).

7.4. Robustness check

As anticipated in Section 3 and discussed in the Methods part, one weakness of the traditional way to evaluate the individual willingness to report is that it is based on the self-reported attitude towards blowing the whistle, given that we cannot verify what they would do in real contexts; the main inconvenient of this approach is that this measure could suffer from social desirability bias and/or experimenter demand effect, as individuals recognize that they should be supposed report, and so they tend to claim that behavior even if it would not be the case in reality. At the light of this, in this paragraph I will try to get closer to the real (or, at least, more realistic) individuals' beliefs about their whistleblowing attitudes. As explained in Section 4, here I do not consider as whistleblowers those who simply answered that they would report, but only the respondents that actually wrote what they would have communicated in case they witnessed the scenario in real life. Such option is available only to those who claim that they would have reported the case immediately, but it is not mandatory. Over the 140 individuals who chose this specific option on the 5-items scale of the dependent variable

(Appendix 4), 103 described what is wrong for them, which corresponds to the 11.94% of the 863 respondents who evaluated the scenario. This percentage is much more realistic and reliable with respect to what individuals claimed in the questionnaire (68.17%).

Below, Table 8 replicates the regressions developed to test Hypotheses 1 and 2, to see if with this new dependent variable the findings are stable. Only the most complete specification has been reported; regressions with (1) exploit the individual propensity (the fourth regressions of Tables 4 and 5) while those marked with (2) consider this new variable.

Table 8 – *Test of Hypotheses 1 and 2 with the two dependent variables*

	(1)	(2)	(1)	(2)
Treated	-0.074 (0.225)	-0.006 (0.310)		
Psychological message			-0.568** (0.289)	-0.806** (0.376)
Economic message			-0.349 (0.291)	-0.952** (0.402)
Interaction Psy*Eco			1.248*** (0.421)	1.095* (0.570)
self-reported behavior	1.160*** (0.200)	1.162*** (0.277)	1.111*** (0.232)	1.135*** (0.316)
WB risk attitude	0.379*** (0.046)	0.428*** (0.080)	0.408*** (0.053)	0.436*** (0.089)
Demographics	✓	✓	✓	✓
Day FE	✓	✓	✓	✓
Daytime FE	✓	✓	✓	✓
constant	-1.313 (0.958)	-7.651*** (1.409)	-1.844 (1.130)	-7.975*** (1.683)
N	776	745	614	562

Comparing the two left-hand side regressions (which relate to Hypothesis 1), what emerges is an overall comparability of the results: also with the new dependent variable the effect of being treated is not significant and is even closer to zero. This confirms that the message was not powerful

enough to positively affect the individuals' behavior towards reporting wrongdoings, and that Hypothesis 1 is rejected. The effect of the pre-treatment self-reported behavior (how much my behavior is in line with what I claimed at the beginning of the questionnaire) is almost identical in the two cases, and the risk attitude is slightly bigger in terms of magnitude. The sharp decrease in the constant can be explained by the aforementioned marked decrease in the probability to report: given that the effect of being treated and of the other covariates almost does not change, this is reflected in a lower value of the constant.

The comments that relate to the constant, the pre-treatment self-reported behavior and the attitude towards risk apply also when I test Hypothesis 2, and consider the different framings of the treatment (right-hand side regressions). Interestingly, with the new specification the effects of the positive versus negative framing are much more intense (in particular for what concerns the economic consequences) and more in line with the Prospect Theory: in fact, although we would have expected a negative sign for the interaction term, now the magnitude of the three is such that when both the messages are framed positively the overall effect is still negative (-0.663).

This new dependent variable can be used also to test again Hypothesis 3, in order to see if with this more precise estimation of the individual concrete behavior the mediating effect of the risk attitude finally emerges or if, also in this case, we have to reject that hypothesis. Table 9 replicates the regressions of Table 6; again, on the left side the regressions express the effects on the risk attitude, while on the right one they reflect the effects on the reporting behavior. As before, (1) considers the dichotomy treated/not treated, while (2) takes into account the separate framings.

Table 9 – Test of Hypothesis 3 with the new dependent variable

DV: WB risk attitude	(1)	(2)	DV: real behavior	(1)	(2)
Treated	0.140 (0.194)		-0.006 (0.310)		
Psychological message		0.195 (0.242)			-0.806** (0.376)
Economic message		0.228 (0.243)			-0.952** (0.402)
Interaction Psy*Eco		-0.381 (0.344)			1.095* (0.570)
self-reported p(WB)	1.483*** (0.160)	1.597*** (0.178)	1.162*** (0.277)	1.135*** (0.316)	
WB risk attitude			0.428*** (0.080)	0.436*** (0.089)	
Demographics	✓	✓	✓	✓	
Day FE	✓	✓	✓	✓	
Daytime FE	✓	✓	✓	✓	
constant	7.174*** (0.762)	7.432*** (0.862)	-7.652*** (1.409)	-7.975*** (1.683)	
N	803	640	803	640	

As done for Table 7, it is possible to develop some considerations at the light of what emerges when comparing treated versus controls (1) or the different impact of messages and framings (2). In the first scenario the overall effect of receiving any message on the individual behavior is again very limited, both in terms of magnitude (0.054) and significance (due to a standard error of 0.321). The direct effect refers to the one of the treatments on whistleblowing behavior (-0.006), while the indirect one relates to the product between the effect of the treatments on risk attitude and of the latter on the real behavior ($0.140 \times 0.428 = 0.060$, with a standard error 0.070). Also in this case, the Sobel test shows the absence of significance for the indirect effect (p-value: 0.473).

What emerges analyzing columns (2) is slightly different with respect to what found when considering the previous dependent variable in Table 7,

with the overall effects of the two messages which is statistically significant.

In fact, running the same procedure as before, the total effect of the economic message is equal to -0.852^{**} (st. err. 0.415), the psychological one equals to -0.721^* (st. err. 0.490) while their interaction when both are framed as negative consequences due to non-reporting corresponds to 0.929 (st. err. 0.589). Coherently, they all relate to the sum of direct plus indirect effects. The Sobel test shows how the indirect effect for each of the components –economic framing, psychological framing and their interaction term– is not significant (p-values of 0.356 and 0.426 for the economic and psychological contents, 0.281 for the interaction term).

Although the overall effect of the framing of the two contents is statistically significant, we can conclude that there is no mediation mechanism that involves the individual risk attitude.

8. Discussion and conclusions

The present chapter analyzed the role of providing further pieces of information to public employees as an instrument to modify their attitude towards reporting wrongdoing, through a change in their implicit cost-benefit analysis when they compare the potential gain and losses consequent to a report versus keeping silent. The importance of improving the overall knowledge about the phenomenon as a policy able to increase the individual awareness and change her cost-benefit balance derives from the fact that delivering information is a measure that can be pursued almost for free, in particular if compared to other policies that entail relevant economic and political costs (e.g. the release of a whistleblowing law at a national level).

The findings of this chapter give the opportunity to develop some considerations:

- overall, the delivery of any piece of information about the individual consequences due to (not) reporting misconduct seems not to

matter in this context; at least, the chosen information was not relevant enough to stimulate further reactions by the respondents;

- in terms of framing, the coherence in how the message has been presented seems to better explain the evidences, although with the new dependent variable the results go a bit more towards the Prospect Theory predictions;
- in all the specifications the individual risk attitude has a relevant impact on the individual choices; nevertheless, the mediation analysis shows how it was not affected by the provided messages.

At the light of the last point, the main policy implication regards the role of risk aversion: given such relevance, public organizations should work on that in order to make people less risk averse, for instance increasing their trust towards their organization and the protection measures. In addition to that, clear messages with positive or negative information on the individual costs and benefits, weighted ad hoc for specific types of employees, would be an effective policy to increase the individual awareness and stimulate their active behavior towards witnessed misconducts.

In terms of limitations, there could be elements that may have affected the overall external validity of the results: the context under analysis is very specific, as the subjects are public employees of a specific big municipality; given the absence of geographical (and cultural) heterogeneity, the results may not hold for the entire Italy. Another potential explanation that could explain the results that emerged regards the delivered messages, and their limited effectiveness in shaping the whistleblowing decisions: according to the aforementioned aspects, this could derive from a lack of novelty in the content, reduced powerfulness in terms of persuasiveness, limited credibility for the lack of sources or weaknesses in the delivery instrument.

Then, future stages could try to overcome some of the hypothesized weaknesses, in order to strengthen the current results:

- one option could be to test the effect of the same treatments on different scenarios (other misconducts different from absenteeism) in order to check whether it was a matter of illicit behavior or a signal that Prospect Theory could not be the most appropriate theory that explains the mechanism behind whistleblowing choices;
- another idea could be to test the effect of these messages in different contexts, to increase the external validity of these findings and see if cultural backgrounds alter the effectiveness of the treatments. This is what has been done in Chapter 3;
- finally, to further increase our knowledge about the role of delivering relevant information to potential whistleblowers, we could change the content and test the impact of different types of messages; this would allow us to get a wider perception about the effectiveness of information provision as a policy able to foster internal whistleblowing.

Future research could also regard the cost-benefit process in the whistleblowing context with different subjects under study, for instance taking into consideration the organizations themselves; in fact, the organizational willingness to concretely fight wrongdoers could be affected by different contrasting incentives: organizations could avoid taking actions against a certain misconduct within their environment, if it (1) is economically profitable, (2) could harm powerful managers or (3) could be damaging in terms of external reputation, at the expenses of those specific employees who suffer such illicit behavior.

Given that the society as a whole suffers losses from unpunished misconducts, both from an ethical and economic perspective, future work should focus also on the organizational side, in order to convince them to be more willing to fight internal misconducts and create a more friendly and safer environment for those who witness a misconduct and could be prone to report, with the right conditions.

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10. Appendix

A: Structure of the questionnaire

The points in italics are sets of questions; the other just text.

1. Introduction to the questionnaire
2. *Individual characteristics*
3. *Pre-treatment self-reported propensity to report wrongdoing*
4. Treatments (if any)
5. Scenario
6. *Post-treatment scenario-based attitude towards reporting*
7. *Risk attitude overall and in the whistleblowing context*
8. *Perceptions about the phenomenon within the Municipality of Milan*
9. *Final questions about other relevant factors*

B: Treatments

Psychological treatments

Positive framing: *Reporting an illicit behavior that you witness does not represent just a mere service to the community, but brings with it also 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 represent just a missed service to the community, but brings with it also 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 decrease the economic wastes for the entire community: thanks to the communications sent from its own public employees, some estimates show that in 2017 the Municipality *** (name hidden for privacy reasons)*

had recovered a 3% productivity and, thanks to the obtained resources, it didn't have to increase the local taxes for an average amount of 44 euro per capita.

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

C: Scenario

The supervisor of my office, Mr. XXX, often spends part of the morning at the bar YYY of ZZZ Square to have breakfast and talk with some friends, staying there a lot and arriving even one/two hours 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 damages me and my colleagues, as we are forced to do front-office activities also for them, precisely during the day periods with highest influx. In addition to the queues that create, we often suffer many complaints by citizens as long as we are forced to interrupt the procedures every time that the presence of Mr. XXX is required.

D: Scenario evaluation (5-item scale)

Imagine to directly witness these behaviors. Do you believe that there are any irregularities that should be reported?

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; Pfeifer, 2011; Dohmen et al., 2010, 2011; Dur and Zoutenbier, 2014, 2015)

Referring to the activity of reporting wrongdoing that you witness, are you generally a person who is willing to take risks or do you try to avoid taking risks?

Chapter 3: A comparative study on the role of information on public employees' attitude towards whistleblowing: an empirical generalization in the Dutch context.

Abstract²

Although replications are fundamental to test and confirm the results of previous contributions (in particular for what concerns their external validity), in the Public Administration field this instrument is still rarely explored (Walker et al., 2017a; 2017b; 2018). Nevertheless, when we refer to experimental studies, it is quite naïve to claim that the results of a certain study represent how a specific phenomenon works across different contexts.

The aim of this chapter is to understand whether cultural factors can influence the effectiveness of a specific provided piece of information on the individual whistleblowing behavior; this has been done through a comparative study of the previous experiment. In detail, I develop what Tsang and Kwan (1999) define an *empirical generalization* and an *extension*: I apply the same measurement and analysis but to a different population (in this case of a different country), and then I develop an alternative approach. Taking as reference the survey focused on the municipal employees of Milan, I replicate the experimental design in a Dutch context with public service professionals (N=177).

The comparison between Italy and the Netherlands is particularly interesting, because at one side they share a common socioeconomic background (developed countries in the EU), but at the same time they are characterized by different cultural roots (Mediterranean vs. Continental); this allows to test whether the results are strong enough when controlling for the cultural/country effects. Another relevant aspect lies on the fact that there are no replication studies in the whistleblowing context, notwithstanding the importance of the topic in terms of economic wastes for Public Organizations due to traditionally low reporting rates. Finally, although very few studies directly involved public employees in this branch of literature, this project would be able to exploit this type of population both in the original and the comparative study.

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1. Introduction

As already mentioned in the previous chapters, the reason why whistleblowing has gained so much attention in these last decades lies on the fact that wrongdoings in the work environment are relevant not only from an ethical point of view, but also because they bring very concrete consequences in economic terms: taking as reference one of the most diffused illicit behaviors, corruption, a study by RAND Europe commissioned by the European Parliament (Hafner et al., 2016) estimated its costs at €904 billion for the EU-28 area. Looking at the Dutch panorama –focus of this contribution– the report hypothesizes losses for more than €4.4 billion, which corresponds to an implicit tax of €260 per person. Such relevance towards this phenomenon is confirmed also in terms of individual perceptions: according to a recent survey (Eurostat, 2017), 39% of the respondents believes that the level of corruption in the Netherlands had worsened in the preceding 3 years, while only 7% believes that it had decreased; in addition to that, 44% is convinced that corruption is widespread in the country and 35% thinks that corruption is part of the business culture of the country. Although these examples refer to just one specific misconduct, they give a flavor of the overall magnitude that the sum of these illegal behaviors can have, if not reported.

Given that the amount of resources devoted to the fight of these phenomena is typically not sufficient, it becomes fundamental to study the determinants of whistleblowing, in order to implement effective policies that can take advantage of the honest civil servants' collaboration. Nevertheless, public employees' trust towards those institutions that should help and protect them is traditionally low: still focusing on the Dutch context, one example of such lack of trust can be found in the *Huis voor Klokkeluiders* ("House for Whistleblowers"), an independent NGO funded by the national government and created for this purpose, which since 2016 investigated just 14 cases for the entire Netherlands (Huis voor Klokkeluiders, 2019). The aim of these evidences is to highlight how also a country traditionally characterized by high values on integrity and

low levels of misconduct should seriously consider how to deal with these increasing phenomena and how to stimulate wrongdoing witnesses to expose themselves.

Among the wide array of policies that have this specific purpose, Chapter 2 tested whether providing information about the individual consequences from an economic and psychological perspective is an effective enough instrument to modify the individual perceived costs and benefits in the whistleblowing environment.

At the light of this, although new evidence is always needed to test further instruments and policies, it is equally important to understand whether the results obtained in a specific context are sufficiently reliable in terms of external validity: in fact, given that policies that involve the Public Administration in its entirety influence the functioning of the government, the use of public money and the wellbeing of the entire population, it is fundamental to make sure that the available results are accurate. Then, the purpose of this chapter is to replicate the previous Italian experiment, in order to test the consistency of those results and understand whether civil servants react differently to the treatments provided depending on their national contexts and cultures.

The main novelties of this article can be summarized as follows:

- to the current knowledge, there are still no experiments that replicate previous findings in the whistleblowing context;
- the amount of contributions that involve civil servants through experimental designs is very scarce (see Chapter 1);
- this is the first experiment that compares the Italian and Dutch frameworks, and one of the few that departs from a US-centric vision;
- exploiting the work of Hofstede (2001) as theoretical framework, this contribution takes into account many different cultural dimensions to develop well-reasoned hypotheses to explain potential behavioral differences.

The remainder of the article is structured as follows: Section 2 presents the state of the art for what concerns the need for replication and comparative studies and why they are relevant in this context; Section 3 develops the hypothesis that is going to be tested; then, the chapter moves to the description of how the experiment is built. Section 5 focuses on the sources of the dataset, then it presents some descriptive statistics and finally the main results. Section 8 concludes discussing the results and their implications.

2. Literature review

Although replication studies are still not very diffused among published papers across journals and fields, an increasing interest is rising around this experimental approach. The main reason behind that lies on how replications can improve the overall quality of research studies, from different points of view.

Starting from a philosophical perspective, Van Witteloostuijn (2016) takes inspiration from Karl Popper's (1959) idea, according to which scientific progress evolves on the back of the falsification principle; then, in order to strengthen existing theories and expand our knowledge, we should try to falsify them through constant replications, as well as publish non-significant and counter-results, backed by systematic meta-analyses.

In more practical terms, Dewald et al. (1986) and Ioannidis (2005) highlight how replications are needed as, in many cases, published papers contain errors or, in the worst cases, their findings are false: Dewald et al. (1986), focusing on the empirical economic research, show how *"inadvertent errors are a commonplace rather than a rare occurrence"*, while Ioannidis (2005) points out that *"a research finding is less likely to be true when the studies conducted in a field are smaller; when effect sizes are smaller; when there is a greater number and lesser pre-selection of tested relationships; where there is greater flexibility in designs, definitions, outcomes, and analytical modes; when there is greater*

financial and other interest and prejudice; and when more teams are involved in a scientific field in chase of statistical significance.”

In addition to that, of course, a very cited element regards the need for external validity, due to the aforementioned problems that limit the reliability of one-shot results.

Another piece of the replication literature relates to the theorization of such approach; in particular, scholars already put efforts in order to define and classify the types of replications (Tsang and Kwan, 1999; Schmidt, 2009; Bettis et al., 2016) and provide “recipes” and recommendations in order to develop them properly (Rosenthal, 1990; Schmidt, 2009; Brandt et al., 2014; Simons, 2014; Anderson and Maxwell, 2016; Bettis et al., 2016).

A further argument that confirms the relevance of replication approaches can be found in the amount of fields in which it is possible to find contributions that analyze theoretical issues linked to replication elements: psychology is by far the most represented field (Smith, 1970; Francis, 2012; Makel et al., 2012; Duncan et al., 2014; Fabrigar and Wegener, 2015; LeBel, 2015), but other disciplines include also sociology (Freese, 2007; Freese and Peterson, 2017), statistics (Lindsay and Ehrenberg, 1993), biostatistics (Kelly, 2006), education (Makel and Plucker, 2014), policy studies (Morrel and Lucas, 2012), advertising and marketing (Kerr et al., 2015), information systems management (Berthon et al., 2002) and human-computer interaction (Hornbæk et al., 2014) among others.

Compared to such fields, Public Management and Public Administration research is relatively developed in terms of theoretical approaches towards replication studies, although the interest has risen only in the last few years. Taking inspiration from other disciplines, Walker et al. (2018) propose a common replication framework, providing an overview of the replication process with a set of best practices; Pedersen and Stritch (2018) present the RNICE model (Relevance, Number, Internal validity, Contextual realism, External validity), in order to systematically evaluate

how much a replication actually contributes to the field. Walker et al. (2017a, 2017b) take both inspiration from the work by Tsang and Kwan (1999), in order to apply the original replication classification in the Public Management field; the book chapter (Walker et al., 2017b) goes even beyond, highlighting the practical benefits that replications imply and raising again the potential “errors and frauds” issues (Dewald et al., 1986; Ioannidis, 2005) and showing how this instrument can help in terms of external validity (generalizing findings or identifying contextual patterns). In terms of how replications can be exploited as a mean to overcome specific technical issues, Favero and Bullock (2014) and O’Toole and Meier (2014) focus their attention on the common-source bias problem, derived from the fact that *“much of the progress can be attributed to a small number of data sets on local governments in a few countries. Additional gains might be made through developing a theory of context and how context affects the management-performance linkage”* (O’Toole and Meier, 2014). Such theory should incorporate contextual variables linked to the political, environmental and internal contexts. Finally, Jilke et al. (2017) underline how replications are needed as outcome measures in current studies are rarely really comparable.

For what concerns the whistleblowing context, the literature on replication is almost absent: only one paper (Ivković et al., 2016) tries to replicate previous results, and no contributions focus on the role of information in this context and in terms of experimental studies. This element represents a further incentive to test the external validity of whistleblowing studies and, in particular for these purposes, the importance of replications when we talk about the role of information diffusion, its understanding and the consequences in terms of higher attitude towards blowing the whistle in a public context.

3. Hypotheses

While in the previous chapter the point was to analyze the impact of providing information and, specifically, of the Prospect Theory (Tversky and Kahneman, 1981) applied in a public framework, here the aim is to

develop such experiment in another context, in order to test the external validity of the previous evidences and verify whether national environments affect the individual understanding and reaction to some pieces of information. The choice of the contexts under analysis (Italy and the Netherlands) reflects the aim to compare countries with a common socioeconomic background (Western developed countries), but at the same time characterized by different cultural roots (Mediterranean vs. Continental).

Nevertheless, in order to develop some assumptions about the expected differences between the Dutch and Italian panorama, it is not possible to build upon previous whistleblowing literature: in fact, there are neither theoretical contributions nor empirical studies that specifically analyze cross-country differences and exploit references and sources that already compare those environments; the few experiments that exploit samples from different countries, either are not interested on the potential cultural differences (O'Brien et al., 2018) or they do it building up stories that try to be as convincing as possible in order to explain what differences they expect to find (Feldman and Lobel, 2008; Lee et al., 2018). The differences that they find, respectively, between US and Israeli and between US and German employees confirm the hypothesis developed in this chapter, that actually cultures matter and influence how people react to witnessed misconducts. The most recent one explains country differences through the role of their historical roots and the differences in terms of timing of rules enforcement, while Feldman and Lobel (2008) consider the role of individualism and solidarity, the differences in the timing of rules enforcement and the role of labor market openness and protection. Nevertheless, they do not rely on common sources, but just describe the story of the two countries under analysis with some references and then build their hypotheses on the credibility of such stories.

In order to overcome this issue I rely on Hofstede (2001), who shows how national environments may significantly differ, according to the cultural

indexes developed for many countries (the Netherlands and Italy among them) and for different dimensions (*power distance, uncertainty avoidance, individualism vs. collectivism, masculinity vs. femininity and long-term vs. short-term orientation*). This framework has already been widely exploited in the whistleblowing literature (Schultz et al., 1993; Patel, 2003; Zhuang et al., 2005; MacNab et al., 2007; Bierstaker, 2009; Curtis et al., 2012) and also in the Public Administration field (e.g. Grimmelikhuijsen et al., 2013). Although it has some weaknesses and limitations (the sample comes from one specific private sector company; the author implicitly hypothesizes within-country cultural homogeneity), Hofstede's (2001) contribution is the most relevant one in terms of measurement of culture differences across countries, as it is able to control for many different cultural dimensions. For the development of the hypotheses, given that the Hofstede's scores are not so updated, I rely on the assumption that culture values are stable or, at least, do not change significantly over time (e.g. Barkema and Vermeulen, 1997).

The aforementioned five dimensions refer, respectively, to how people deal with inequality and uncertainty, to the relationship between individuals and the collectivity, to the emotional and social roles of genders in the society and to the society orientation towards the future; for each pillar, Hofstede lists what are the peculiarities in many contexts (work, family, individual beliefs...) of countries characterized by high or low values for that index.

Table 1 presents the values for each dimension computed for the Netherlands and Italy. As they represent an index that summarizes many subcategories, the listed numbers do not have a direct interpretation but have to be considered in comparative terms, to see how a country performs with respect to the other ones. The minimum and the maximum refer to the countries with the lowest and highest values, and are included to help the interpretation of the differences between the Netherlands and Italy.

Table 1 – Hofstede's (2001) indexes for the Netherlands and Italy

	the Netherlands	Italy	min	max
Power distance	38	50	11	104
Uncertainty avoidance	53	75	8	112
Individualism vs. collectivism	80	76	6	91
Masculinity vs. femininity	14	70	5	95
Long vs. short-term orientation	38	34	19	46

While for dimensions like individualism and time orientation the two countries end up with very similar indexes, their values show more marked deviations when we refer to power distance and uncertainty avoidance, with the highest difference when we analyze the masculinity dimension. Elaborating on the peculiarities that differentiate the countries with high and low values on these last three pillars, it is possible to build some hypotheses about the individual behavior in the whistleblowing context.

In terms of *power distance*, Curtis et al. (2012) highlight how this is one of the most validated cultural items of the Hofstede framework in the ethics literature. Also in the specific whistleblowing context, many scholars considered its impact on the reporting intentions (Schultz et al., 1993; Zhuang et al., 2005; MacNab et al., 2007; Bierstaker, 2009; Curtis et al., 2012) and what emerges is that power distance is inversely related with reporting intentions. In fact, when its relative score is particularly high, it reflects a society in which there exist unequal levels of power in institutions and organizations, hierarchical order is well established and superiors' actions require less justification, even when they are questionable (Schultz et al., 1993; Zhuang et al., 2005). As Hofstede (2001) says, countries with high values tend to rely on "*centralized decision structures, more concentration of authority*", in which "*subordinates expect to be told*" and with "*no defense against power abuse by superior*". Then, in a cultural framework characterized by high power distance individuals are less prone to report, either because they

fear retaliation (Tavakoli et al., 2003) or because it may harm organizational harmony (Vandekerckhove and Commers, 2004). At the light of these premises and the scores presented in Table 1, we expect that power distance will be negatively related to propensity for whistleblowing and then Dutch workers, on average, will be more prone to expose themselves to a risky scenario (with respect to no action) and report more compared to their Italian colleagues.

Moving to *uncertainty avoidance*, current whistleblowing literature does not completely agree on how it could shape the individuals' attitude towards reporting. At one side, MacNab et al. (2007) depart from Hofstede (1997), who supports that countries characterized by high scores seek structure in their organizations and aim at making events clearly interpretable and predictable; they hypothesize that the pressure to report will be stronger, as these cultures will perceive misconducts as more severe (Sims and Keenan, 1999; Tavakoli et al., 2003). Partially in line with this interpretation, Schultz et al. (1993) state how strong uncertainty avoidance societies are characterized by rigid codes of belief and are intolerant towards deviant persons and ideas, which could lead to a stronger likely to report questionable acts. Nevertheless, being highly structured and bureaucratic may also imply a high work group pressure towards suppressing reporting intentions (Miceli and Near, 1992). Therefore, uncertainty avoidance leads to highly bureaucratic organizations which in turn implies narrowly defined roles, limiting the individual from exploring consequences of actions or assuming responsibility beyond this role. This latter interpretation is in line with some of the Hofstede's items that compose the uncertainty factor, as countries with high values are characterized by a higher attitude towards the status quo and a preference for a more hierarchical control ("*what is different is dangerous*", "*innovators feel constrained by rules*", "*appeal for hierarchical control rule*"; Hofstede, 2001) which implies that, also in this case, Italian workers should be more reluctant towards reporting.

Finally, countries with higher indexes for *masculinity* should have a lower propensity to report with respect to those with lower ones, given the cultural values and principles that characterize them (respectively: denying conflicts vs. problem solving, preference for job security vs. for better working conditions; Hofstede, 2001). As this is the first contribution to take into account this specific item in the whistleblowing literature, no further discussion or comparison with previous papers can be done in terms of assumptions. According to the masculinity characteristics, also in this case Dutch workers are expected to report more.

Given that the evidences from all the three dimensions go in the same direction, it is reasonable to suppose that:

Hypothesis 1: *On average, the propensity towards reporting misconduct is greater in the Netherlands with respect to Italy.*

Hypothesis 2: *The higher whistleblowing attitude of the Dutch workers is reflected also in terms of responsiveness towards the treatments, through a higher magnitude of such coefficients.*

A further element that goes in the same direction and confirms these hypotheses is based more on an anecdotal than academic evidence, and relates to how wrongdoing and, in particular, corruption is diffused inside a country, according to individual perceptions. Although the scenario presented in the survey does not deal with a misconduct that belongs to this branch, corruption is one of the most diffused unethical behaviors that public and private employees witness in their working environment. Such diffusion, and degree of acceptance, of corruptive phenomena can be ascribed to cultural frameworks. Having a brief look on how countries are ranked according to how corruption is spread could strengthen the beliefs about how Italian and Dutch populations could react to a misbehavior. Data collected by Transparency International about corruption diffusion (Transparency International, 1995; 2020) highlights how Italy and the Netherlands perform in a drastically different way: from 1995 onwards the

Continental country corruption perception index (CPI) has been stable over time, showing a constant trend of low perceptions of internal corruption (shifting between a score of 87/100 in 1995 and 82/100 in 2019); Italy has a different path, characterized by very poor values (30/100 in 1995) but with a positive, although not completely satisfactory, trend (53/100 in 2019). This evidence suggests that, in a low corrupted country as the Netherlands, public and private workers are less used to get involved into misconduct, so when this is the case they can easily recognize and treat it as wrong; as in Italy wrongdoings are much more common, people have a higher propensity to get used to them and, depending on the contexts, they could also be perceived as acceptable (e.g. Schultz et al., 1993). This should be reflected on what already stated in Hypotheses 1 and 2.

4. Methods

In order to test the aforementioned hypotheses the chosen approach consists in an experimental design, in which the data are collected through an online survey delivered to the Alumni panel of the Utrecht School of Governance (mean age: 41.48; working experience: 17.17 years). Analogously as Chapter 2, all the items inside the questionnaire are the same across treatments: the element which differentiates a treatment group from the other ones is the pre-test information, provided to the individuals as a sort of introductory section. Such information refers to the *economic* and *psychological* consequences in concrete terms for the individual due to (non) reporting some wrongdoing witnessed in her working environment. The treatment structure follows a 2x2 scheme for what regards the treatment groups, plus a control group which did not receive any type of messages (as in Chapter 2). Both types of information are provided to all the treated respondents; the two dimensions relate to the positive vs. negative framing for both messages, meaning that they can be presented as costs if they do not report or as benefits if they do it. As a consequence of this 2x2 matrix, respondents in the treatment groups

can receive the messages framed both in a negative way, both with a positive framing or with a mixed approach. In all the cases, the assignment of the individuals to a specific treatment/control followed a randomization process aimed at obtaining balanced groups for each sub-sample.

The dependent variable (the individual attitude towards reporting wrongdoing) is measured through a scenario evaluation, in which respondents are asked about the perceived seriousness of the presented behaviors. A similar question is asked also before the scenario is presented, to check any differences between the self-reported and actual propensity towards blowing the whistle.

5. Data

The data used for the analysis derives from an online questionnaire, which has been delivered by e-mail in May 2019. Over the 184 final responses, 7 individuals have been excluded from the sample because of inconsistencies in the self-reported demographic data (amount of working years either higher than their reported age or that would imply working since being a child). The different N for many variables in Table 2 can be explained either because the respondents abandoned the questionnaire in the meanwhile or because some questions did not apply to their situation: in fact, with respect to the Italian sample of Chapter 2, this pool is more homogeneous in terms of educational background but more heterogeneous for what concerns the current individuals' working environments, including also a few unemployed (9 subjects) and some people working outside the public sector (33 individuals, but 23 of them work with strong connections with it e.g. consultancy in the public sphere). The questions that refer to the main dependent and independent variables are the same as in Chapter 2, so no further discussion will be provided in addition to what already exposed in paragraph 5.1. Also the socio-demographic variables are captured by the exact translation of what asked in the Italian survey; the only difference consists in some sets of

questions that were asked in the original study for administrative purposes to deepen the knowledge about how Milanese civil servants perceive the whistleblowing phenomenon inside their institution, and were not asked here. As this questionnaire simply represents a reduced version of the original text, all the considerations developed to explain any potential ethics-related issues automatically apply also for the Dutch study.

When the present chapter will be ready for submission, the final version will include a comparable pool referred to the Italian panorama. The current comparison with the Italian context is done exploiting the data presented in the previous experiment; the drawbacks of such temporary choice are presented in the next paragraphs.

6. Descriptive statistics

In the following table it is possible to find the main peculiarities related to the individual characteristics of the Dutch sample. Some of the covariates are dummy variables: *sex* (0: male; 1: female), *job position* (0: employee; 1: manager) and *front* and *back office* (those who have a mix of front and back office activities are 34.9% of the sample: $1 - 0.191 - 0.460 = 0.349$). The individual propensities towards reporting are measured through the same 5-items scale exploited in Chapter 2.

Table 2 – *Descriptive statistics*

Variable	Mean	Std. Dev.	Min	Max	N
self-reported p(WB)	3.994	0.835	1	5	166
scenario p(WB)	3.569	0.908	1	5	160
dummy self-reported p(WB)	0.795	0.031	0	1	166
dummy scenario p(WB)	0.719	0.036	0	1	160
sex	0.603	0.678	0	4	174
age	41.485	13.668	24	69	171
job position	0.603	0.789	0	4	174
work experience	17.167	14.115	0	44	129
front office	0.191	0.394	0	1	152
back office	0.460	0.500	0	1	152
general risk attitude	6.753	1.744	1.1	10	157
WB risk attitude	6.451	1.944	0	10	156

Analogously to what has been done in the previous chapter, we can have a look at how the individual attitudes towards reporting change depending on their general willingness and their actual behavior in a certain specific situation. At the light of the specifications of the previous Chapter in terms of more appropriateness of the dummy approach for the dependent variable, the following analyses directly exploit this transformation. If we consider the overall Dutch sample, it is possible to see its clear decrease between the pre- and post- treatment delivery, which is confirmed by a t-test (significance at the 5% level). Another interesting aspect relates to the absolute values, compared to the Italian ones (considering N=863 of Table 2): in the Italian case, the pre-treatment attitude towards blowing the whistle was 0.693, while the post-scenario probability of reporting was 0.682. The first interesting element regards the fact that, in the Italian framework, the difference between the pre- and post- treatment values is not significant; the second one is that both values are lower with respect to the Dutch sample, which goes in the direction predicted by Hypothesis 1.

In both cases it is not possible to conclude with certainty if the decrease derives from the fact that in the post-scenario evaluation an individual has a more concrete idea about a situation in which she should blow the whistle (and then she is more conservative with respect to the pre-treatment self-declared propensity) or if the post-scenario index is lower just because of the specific misconduct choice; in any case, the differences in the decrease between the two samples suggests that Dutch and Italian respondents reacted differently to the absenteeism case.

For what concerns the individual risk attitude, the Dutch respondents are in line with what already seen in the previous chapter: the risk attitude decreases if we shift from general considerations to the whistleblowing context. Nevertheless, here the decrease is even more accentuated (0.30 versus the 0.16 in the Italian case), and a t-test shows how such difference is statistically significant at the 1% level. Another interesting feature regards the difference in terms of absolute values if we compare the two samples: the Italian respondents claim to be more risk lover, both in general terms (7.05 against 6.75) and when the question is focused on whistleblowing aspects (6.89 versus 6.45).

Before moving to the presentation of the main evidences, analogously to what already done for the Italian sample, balance checks need to be performed in order to test whether the randomization process performed well. In detail, we can control for the socio-demographic characteristics of the respondents running again a Kruskal–Wallis one-way analysis of variance based on ranks (Kruskal and Wallis, 1952). As the dimension of the control and treated groups is significantly smaller in the Dutch population compared to the Italian one, the results of this test are even more relevant.

Table 3 – *Balance checks*

Variable	$\chi^2(4)$	p-value
sex	3.132	0.536
age	4.469	0.346
job position	2.389	0.665
work experience	1.674	0.795
front office	1.814	0.770
back office	7.428	0.115

Although the composition of each group is not particularly high, there are no treated and/or control groups that differ from the others for any of the socio-demographic controls. Also in this case the randomization process effectively distributed the respondents according to their characteristics in a balanced way.

7. Results

In order to compare the Dutch findings with the results of Chapter 2, this section will follow the same structure developed for the Italian experiment, in order to see what are the peculiarities of the samples for each specification.

In Table 4 it is possible to have a look at the baseline regressions with the current sample. Analogously as before, the four specifications follow an incremental approach, in which the individual attitude towards reporting is studied as a function of just being treated or not (1), with the addition of the individual risk attitude towards reporting and the pre-treatment self-declared attitude (2), of the individual characteristics (3) and controlling for day and daytime (morning, afternoon, evening) fixed effects, referred to the moment in which respondents compiled the questionnaire. Again, the variables of interest is the treatment dummy, which is equal to 0 if the subject belongs to the control group and 1 if she received any message.

Given the reasoning of the previous chapter regarding the appropriateness of the dependent variable and the related choice of the model, here I will

directly present the results with the dichotomous variable (report/not report) as the dependent, through the exploitation of a Logit model.

Table 4 – *Baseline regressions – Logit specification*

	(1)	(2)	(3)	(4)
Treatments	0.305 (0.435)	0.507 (0.460)	0.438 (0.584)	0.833 (0.771)
WB propensity pre-treatment		0.809* (0.432)	0.949 (0.613)	1.481* (0.787)
Risk attitude		0.286*** (0.099)	0.257* (0.142)	0.192 (0.183)
Demographics			✓	✓
Day FE				✓
Daytime FE				✓
constant	0.693* (0.387)	-1.905*** (0.806)	-1.384 (1.764)	-1.516 (2.392)
N	160	156	107	89

The absence of significance can be ascribed to the quite high standard errors and, linked to that, to the small sample size, which lowers the accuracy of the estimates (in particular as long as we include additional set of covariates, which decreases the disposable sample and pushes upwards the standard errors).

In terms of peculiarities of the coefficients, their evolution across the four models shows that taking into account different sets of controls actually matters, inflating the role of the treatments and the influence of the previously reported attitude towards reporting; both the individual risk aversion and the constant lose magnitude and significance. Nevertheless, this could also be due to the progressive reduction of the sample, that may have influenced the precision of the estimates.

The absence of significance of almost all the coefficients prevents us from being able to make strong conclusions about the effects of delivering some pieces of information; in terms of signs, interestingly the messages

seem to slightly increase the individual attitude towards blowing the whistle, while the absent/slight significance of risk attitude and pre-treatment reporting behavior needs further analyses, given their active role in the Italian context.

At the light of the aforementioned heterogeneity in terms of working sectors, I also repeated the same regressions including either just those working in the public sphere alone or together with those who work in the private sector but with strong ties with the Public Administration; the results, not included here, are in line with what found in Table 4.

Analogously as in Chapter 2, the following step is to test, within the treated subjects, the effects of the positive and negative framings of the two provided messages. Again, the baseline refers to those who received both messages with a negative framing so, according to Prospect Theory, we should expect a negative coefficient for the three coefficients of interest (the two messages and the effect of their interaction).

Table 5 – *Baseline regressions – Logit specification*

	(1)	(2)	(3)	(4)
Psychological message	0.706 (0.624)	0.885 (0.681)	1.271 (1.090)	3.100* (1.752)
Economic message	-0.239 (0.548)	-0.184 (0.607)	-0.056 (0.820)	0.901 (1.151)
Interaction Psy*Eco	-0.801 (0.822)	-0.693 (0.905)	-1.947 (1.428)	-3.913* (2.223)
WB propensity pre-treatment		1.018** (0.499)	1.114 (0.801)	2.356** (1.174)
Risk attitude		0.379*** (0.118)	0.288 (0.189)	0.048 (0.264)
Demographics			✓	✓
Day FE				✓
Daytime FE				✓
constant	0.981** (0.391)	-2.257*** (0.901)	0.061 (2.260)	-0.115 (3.414)
N	128	124	86	70

Although also in this case the results do not allow us to make strong assumptions, the significance of the coefficients is slightly higher; nevertheless, the evolution of the estimates across the specifications requires caution as well. Given the balance checks presented in Table 3, such evolution can be ascribed again to the reduction of the sample (as some individuals left before completing the questionnaire). For this reason, the probability of reporting computed as an example in Chapter 2 in the various specifications here is absent, as it would imply taking into account many coefficients that are only slightly significant (if they do).

While the interaction between the two messages respects the Prospect Theory assumptions, it seems that providing either of the two messages in a positive way is more effective than presenting them as costs from not reporting; this effect is particularly true for the psychological consequences, which coefficient is markedly stronger and also slightly significant with respect to the consequences at the economic level. Then, according to such evidence, it seems that providing the psychological consequences with a positive framing is much more effective, while the same reasoning does not apply with the economic information; when both messages are framed positively, the interaction effect cancels out the psychological one, resulting in an overall individual attitude towards reporting very similar to those who received both treatments as costs from not reporting, which makes the results interpretation less linear (but these unclear evidences could still derive from the low sample size).

Analogously as before, the pre-treatment individual propensity towards reporting influences the scenario evaluation, while risk attitude in the whistleblowing framework loses both its significance and magnitude, confirming what emerged before; this result is not trivial, because it seems that, at least in the Dutch context, people evaluate how to deal with misconducts independently from their risk aversion.

If we consider the results obtained in the Italian context, it is possible to elaborate a bit more about the features that are shared and those that differentiate the two contexts. Before doing that, an important caveat regards the limited comparability of the two samples: while the Italian pool is composed by public employees at the municipality level (all of them belonging to the Municipality of Milan), the Dutch one includes Alumni mainly working in Public Institutions, which implies different tasks, working environments and individual characteristics (e.g. average age, education); in addition to that, there are a few differences for what concerns the demographic variables, as in the Dutch sample the level of education was not asked (being all graduated by definition) while an additional question regarded their current working sector (which was obvious in the Italian case). Also the marked difference in terms of sample size requires caution in the conclusions. Once aware of these limitations, such comparison can give a first flavor of how national contexts could actually matter. Table 6 presents the last specification for each analysis, considering either the fact of being treated or not or the framing effects among the treated. Note that the comparison applying the dependent variable developed for the robustness check (Table 8 of Chapter 2) has not been performed due to the particularly unbalanced sample (towards the non-reporters) that, in addition to its reduced population, would have led to unreliable results. The comparison presented and commented below includes the Italian results from the fourth specification of Tables 5 and 6.

Table 6 – Overall comparison with the Italian sample – Logit specification

	(ITA)	(NED)	(ITA)	(NED)
Treated	-0.074 (0.225)	0.833 (0.771)		
Psychological message			-0.568** (0.289)	3.100* (1.752)
Economic message			-0.349 (0.291)	0.901 (1.151)
Interaction Psy*Eco			1.248*** (0.421)	-3.913* (2.223)
self-reported p(WB)	1.160*** (0.200)	1.481* (0.787)	1.111*** (0.232)	2.356** (1.174)
WB risk attitude	0.379*** (0.046)	0.192 (0.183)	0.408*** (0.053)	0.048 (0.264)
Demographics	✓	✓	✓	✓
Day FE	✓	✓	✓	✓
Daytime FE	✓	✓	✓	✓
constant	-1.313 (0.958)	-1.516 (2.392)	-1.844 (1.130)	-0.115 (3.414)
N	776	89	614	70

Regarding the impact of being treated versus not (the two left-hand columns), the absence of significance implies that the messages did not impact on the final decisions; the difference in sign and magnitude in the Dutch sample might suggest that, with a big enough sample, the effect of the messages could become positive and statistically significant, in line with Hypothesis 2. Focusing on the role of positive versus negative framing (the right-hand columns) the comparison is even more interesting: in fact, the patterns of the three coefficients are all reversed, with different degrees of significance but that highlight how in both countries the effects are mainly driven by the individual consequences from a psychological perspective and their framing. The irrelevance of the economic message is confirmed also in the Dutch panorama, which could

confirm the reasons listed in Chapter 2 to explain the absence of statistical significance. Also in this case the magnitude of the Dutch coefficients is higher compared to the Italian ones, which again goes in the direction of Hypothesis 2; nevertheless, the fact that the magnitude of the treatments exploded between the third and fourth specifications (Table 5) is an additional element that suggests to be cautious with the conclusions.

The pre-treatment whistleblowing attitude is the factor that has more stability across countries, in terms of sign, significance and magnitude; regarding the last point, it is possible to note a higher impact in the Netherlands, in particular in the framing analysis. Finally, in terms of risk attitude towards reporting, although in both countries it has a positive sign, in Italy it is much more relevant with respect to Dutch respondents; apparently, the decision to blow the whistle by the latter ones is not affected by their risk aversion.

7.1. Robustness check

Given the limited precision of the results that emerge from the Dutch scenario, mainly derived from the small sample, a possible way to overcome such criticality is to follow an alternative approach. As classical parametric estimation is not particularly helpful to draw conclusions in this specific context, we can implement Bayesian analysis, and then interpret the results as posterior distributions of the variables of our interest (e.g. Krushke and Liddell, 2018a; 2018b). For the coefficients of our interest, such posterior distribution “[...] *places higher credibility on parameter values that are more consistent with the data*” (Krushke and Liddell, 2018a), providing the most credible value and also its highest density interval in the 95% range (the analogous of the concept of confidence interval). In this way, *“unlike in frequentist statistical analysis, there is no need to generate sampling distributions from null hypotheses and to figure out the probability that fictitious data would be more extreme than the observed data. Measures of uncertainty are based directly on posterior credible intervals.”* (Krushke and Liddell, 2018a).

In order to implement the Bayesian approach, I exploit the *bayes* command using the STATA program. In terms of prior knowledge about the distribution of the previously considered coefficients, I left the default priors to study the Italian context, while for the Dutch replication I included the means and variances values found in the Milanese survey as ex-ante expectations. Tests not included below show how leaving the default priors also for the second experiment brings to very similar results.

The estimation method is the Markov chain Monte Carlo (MCMC), which is a simulation-based estimation that creates the posterior distribution from the prior and the available data. Due to autocorrelation issues that emerge when I include all the covariates as in Table 6 (even when I drastically increase the burn-in iterations and the MCMC sample size), in the following estimations of Table 7 I analyze the impact of just the treatments, the self-declared reporting behavior and the individual risk attitude in the specific whistleblowing context. This choice corresponds to the second specification in Tables 4 and 5. Although this limits the comparability with Table 6, it also allows to get rid of the mentioned issue; in addition to that, it is worth to remember how the balance checks showed a satisfactory randomization process of the individual socio-demographic characteristics across groups; finally, this permits us to slightly increase the population of our Italian and, more importantly, Dutch samples.

Table 7 – Overall comparison with the Italian sample – Bayesian specification

	(ITA)	(NED)	(ITA)	(NED)
Treated	-0.111 (0.213)	0.503 (0.471)		
Psychological message			-0.543 (0.271)	0.925 (0.703)
Economic message			-0.194 (0.277)	-0.219 (0.624)
Interaction Psy*Eco			1.079 (0.396)	-0.684 (0.936)
self-reported p(WB)	1.012 (0.184)	0.747 (0.290)	0.950 (0.213)	0.835 (0.311)
WB risk attitude	0.355 (0.042)	0.313 (0.101)	0.384 (0.049)	0.438 (0.123)
Demographics				
Day FE				
Daytime FE				
constant	-2.189 (0.320)	-1.996 (0.800)	-2.334 (0.357)	-2.430 (0.888)
N	803	156	640	124
MCMC iterations	600.000	600.000	600.000	600.000
Burn-in	100.000	100.000	100.000	100.000
MCMC sample size	500.000	500.000	500.000	500.000
Acceptance rate	0.234	0.277	0.309	0.207
Efficiency	0.078	0.030	0.038	0.016

Although the coefficients are very comparable in terms of magnitude and sign to what already found in Tables 4 and 5 of this chapter (and Tables 5 and 6 of the previous one), the interpretation changes significantly. Given the prior knowledge and the available data, these represent the most credible values for the parameters of our interest, and the 95% interval presents the range of the 95% most probable values. Note that, as these results are based on Monte Carlo simulations, running the analysis

multiple times would lead to different coefficients and standard errors. Nevertheless, the absence of technical issues (e.g. linked to autocorrelation or convergence) implies that the such difference will be really negligible.

8. Discussion and conclusions

The evidences presented above suggest that cultural frameworks need to be taken into account when we want to explore the effectiveness of some instruments or determinants on the individual reporting behavior across countries. A few empirical contributions already tested and found how national patterns characterize and shape the individual behavior; one of the merits of this chapter is to make a further step towards causality, an issue still not explored in the whistleblowing cross-country analysis.

Although the findings of this study are not of immediate interpretability, it seems that both providing information and how such information is framed have opposite effects in the Dutch and Italian contexts; in the two cases Prospect Theory has limited applicability and we should find different theoretical frameworks to interpret such evidence (or combine it with the local cultural peculiarities).

Nevertheless, caution is required for the interpretation of the current results; as underlined above, there are a few aspects that limit the comparability of the two samples. First of all, the two populations are different both in terms of education (heterogeneous background versus graduated people) and jobs (Municipality level versus public sector in general); referring to the latter, unfortunately I could not control for the level of government in which respondents are employed, that may act as a potential source of variation. Another aspect that affects the estimates relates to the small sample size of the Dutch sample, which limits their precision and consequently the significance of the coefficients; finally, the hypotheses are based on limited cross-country studies about how culture shapes the individual behavior.

Among the future stages that this research suggests, a further replication will be done in the Italian context, with a pool of respondents comparable with the Dutch one, in order to get more reliable and comparable results and see whether such differences derive from the local culture or if it is a peculiarity of Municipality-level public employees. In general, future research needs to focus on cross-country studies, as these results indicate how a global recipe does not exist, but policies need to be tailored to their local contexts, at least in the whistleblowing panorama.

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10. Appendix

A: Treatments

Social treatments

Positive framing: *Reporting an illicit behavior that you witness does not represent just a mere service to the community, but brings with it also 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 represent just a missed service to the community, but brings with it also 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 decrease the economic wastes for the entire community: thanks to the communications sent from its own public employees, some estimates show that in 2017 the Municipality *** (name hidden for privacy reasons) had recovered a 3% productivity and, thanks to the obtained resources, it didn't have to increase the local taxes for an average amount of 44 euro per capita.*

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

B: Scenario

The supervisor of my office, Mr. XXX, often spends part of the morning at the bar YYY of ZZZ Square to have breakfast and talk with some friends, staying there a lot and arriving even one/two hours 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 damages me and my colleagues, as we are forced to do front-office activities also for them, precisely during the day periods with highest influx. In addition to the queues that create, we often suffer many complaints by citizens as long as we are forced to interrupt the procedures every time that the presence of Mr. XXX is required.

C: Scenario evaluation (5-item scale)

Imagine to directly witness these behaviors. Do you believe that there are any irregularities that should be reported?

D: 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; Pfeifer, 2011; Dohmen et al., 2010, 2011; Dur and Zoutenbier, 2014, 2015)

Referring to the activity of reporting wrongdoing that you witness, are you generally a person who is willing to take risks or do you try to avoid taking risks?

Conclusions

1. Final remarks

The scope of this dissertation was to shed light on how active whistleblowing behavior could be affected by the diffusion of some relevant information, according to bounded rationality theories that assume that perfect information and/or common knowledge may not hold (Simon, 1972). Departing from an analysis of the current status of the experimental whistleblowing literature, developed in order to identify current gaps and potential for further research, the thesis tested whether providing information about the concrete economic and psychological consequences for the individuals could affect their overall evaluation of perceived personal costs and benefits, and eventually stimulate their attitude towards reporting wrongdoing. The analysis focused not only on the content of the treatment per se, but also on how it has been presented to the respondents, evaluating the relevance of the Prospect Theory in this particular framework. Once discussed the evidences emerged in the Italian context, the last part put the attention on the external validity of these results, developing a cross-country comparison including the Netherlands in the analysis.

Chapter 1 exploited the contribution of Near and Miceli (1995) as a theoretical framework to classify the whistleblowing determinants, and developed a review of the current experimental literature departing from Gao and Brink (2017); the main insights that highlight the originality of this chapter relate to the development of a proper systematic literature review, as well as the inclusion in the analysis of all the papers that study the whistleblowing phenomenon under an experimental approach, going beyond the specific accounting literature and giving particular attention to how the Public Administration context has been investigated so far. At the light of what emerged from the review, elements that would improve the

quality of the experimental approaches in the whistleblowing literature would be:

- a higher engagement of public employees, both to study novel research questions and to test the external validity of previous private-sector results;
- an increase in the number of involved subjects, as in many studies the ratio between population under analysis and treatments is too low to develop trustworthy conclusions and policy implications;
- an improvement on the manipulation process, given that in some cases the authors consider as treatment something that has been just measured and then conveniently used as cluster (like sex or age).

In terms of topics that could be further developed, the blank boxes present in Table 2 of the first chapter clearly represent gaps that need to be filled. Future studies could replicate previous experiments to increase their external validity, in particular if we take into account the diffusion of the aforementioned limitations of the existing literature. Improved and optimized policies consequent to consistent and unambiguous research-based prescriptions would stimulate internal witnesses given that, as previously specified in the dissertation (ACFE, 2018), employees often know in advance about a myriad of wrongdoings that concretely affect their own organization.

Chapters 2 and 3 share the same theoretical background, taking as reference the model of Discretionary Reporting (Graham, 1986; Schultz et al., 1993) and the Prosocial Behavior theory applied to the whistleblowing context (Dozier and Miceli, 1985), to test whether spreading some information about the concrete economic and psychological consequences from (not) reporting cases of misconducts can modify the individual perceived costs and benefits and in turn their active behavior towards blowing the whistle. An additional step that has been done consisted in the consideration of how the delivered message could influence the

respondents' beliefs depending on its framing, in line with what predicted and found in Prospect Theory seminal works (e.g. Kahneman and Tversky, 1979; Tversky and Kahneman, 1981). In order to take into account the potential effect of different cultural frameworks and develop proper hypotheses about the direction of these differences, the main theoretical reference is the seminal work by Hofstede (2001).

The main novelties associated to these two experiments can be summarized as follows:

- in terms of subjects involved, the amount of contributions that exploit civil servants into experimental designs is quite scarce (as witnessed in Chapter 1) and is typically characterized by a small sample. From this perspective, the survey delivered in Milan has been particularly successful;
- focusing on the treatments, these have been the first two attempts to properly manipulate the perceived personal costs of the individuals from a non-economic perspective (e.g. going beyond the classical provision of financial incentives). The content of the messages is completely new, and takes into account not only the economic but also the psychological costs that a potential whistleblower faces when she has to decide whether to report or not;
- although there exist some contributions that already tested the relevance of the Prospect Theory in the whistleblowing context (e.g. Chen et al., 2017; Young, 2017), this thesis considers, at the same time, the role of both the content and its framing;
- also the scenario presented is completely new, and it has been created for this purpose. The main idea was to develop a scenario not specifically attributable to the accounting panorama (as the whole whistleblowing literature does) but that represented a case of misconduct common enough for any type of respondents and applicable to a huge variety of public and private sectors. In this way, anyone could easily identify and empathize with the hypothetical

witness of the wrongdoing, and develop a credible judgment about the presented situation;

- finally, the comparative study developed in the Netherlands is the first attempt to replicate previous findings in the whistleblowing context.

The results emerged in the two experiments can be positioned within the aforementioned theoretical framework, and add further evidence to the results previously found by those who studied the impact of Prospect Theory in the whistleblowing field. While previous research overall confirmed the original expectations of Kahneman and Tversky (Boo et al., 2016; Chen et al., 2017; Young, 2017; Oelrich, 2019), the lack of complete linearity of these results suggest how maybe the framing mechanisms cannot be taken for granted when we consider such a delicate phenomenon.

In terms of lessons that can be drawn for policymakers, these two experiments provide interesting suggestions:

- from a statistical significance point of view, providing or not messages seem not to influence how civil servants perceive their personal costs and benefits from reporting, which leads to almost no changes in their whistleblowing behavior. Nevertheless, in case such messages are delivered, the results show how the way they are framed have different impacts: they could be an effective instrument, but also harmful if poorly framed. In addition to that, clear messages with positive or negative information on the individual costs and benefits, weighted ad hoc for specific types of employees, could be an effective policy to increase the individual awareness and stimulate their active behavior towards witnessed misconducts;
- another main policy implication can be derived from the role that individual risk aversion has on the final decision to blow the whistle: given its strong relevance, public organizations should focus their

- efforts to make people less risk averse, for instance increasing their trust towards them, their reporting channels and enforcing the measures to protect the whistleblowers and punish the wrongdoers;
- the implementation of the same survey experiment to a different pool of respondents in another country showed how, before implementing an information campaign, local public managers should take into account their own cultural features, as these relevantly influence the way people behave and react to messages. The importance of this advice can be ascribed to its universality: it should be taken seriously not just in cases, like this one, in which academic experiments already present some discrepancies in their cross-country results, but also when the current literature seems to provide a coherent framework. Experimental conditions are rarely completely met in reality, which implies that policymakers should consider the diverging conditions before implementing a suggested policy;
 - finally, a fundamental element that requires attention relates to the cheapness of this instrument: in fact, public (or private) organizations could spread relevant information almost for free and very rapidly, increase the individuals' awareness, widen their knowledge about this delicate phenomenon and luckily change the perception about their personal costs. The opportunity given by this instrument can be even more precious if compared to the costs that should be faced, for instance, developing some financial incentives schemes or waiting for proper measures from the legislative apparatus.

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