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# **THE DETERMINANTS OF WHISTLEBLOWING IN PUBLIC ADMINISTRATIONS.**

## **AN ANALYSIS CONDUCTED IN ITALIAN HEALTH ORGANIZATIONS, UNIVERSITIES AND MUNICIPALITIES**

Pietro Previtali, PhD  
Rector's Delegate for Human Resources management  
Associate Professor of Organization and human resources management  
[Pietro.previtali@unipv.it](mailto:Pietro.previtali@unipv.it)  
Department of Economics and Management Sciences  
University of Pavia  
Via San Felice 7, 27100 Pavia (Italy)  
Tel. +39 382 986424

Paola Cerchiello, PhD  
Associate Professor of Statistics  
[Paola.cerchiello@unipv.it](mailto:Paola.cerchiello@unipv.it)  
Department of Economics and Management Sciences  
University of Pavia

### **ABSTRACT**

The aim of this paper is to examine which variables are most important in encouraging whistleblowing in Italian public administrations, as a result of the compulsory application of the anti-corruption Law No. 190/2012. Our research is based on an empirical analysis of 365 public administrations: 86 hospitals, 137 health agencies, 39 universities and 103 major Italian municipalities.

The results show that whistleblowing seems to occur more frequently in large public administrations, to be associated with formal procedures and an organizational proceduralization that encourages

individuals to actually blow the whistle, and, that it is only partially correlated to training and education.

### **Keywords**

**Whistleblowing, corruption, anti-corruption strategies, good government, compliance**

### **INTRODUCTION**

Nowadays an increasing number of organizations are adopting whistleblowing policies. Dyck et al. (2010) show that “18.3% of the corporate fraud cases in large U.S. companies between 1996 and 2004 were detected and brought forward by employees”. An analysis by KPMG (2011) of 348 instances of fraud in organizations in Europe, the Middle East and Africa shows that “formal internal whistleblower reports accounted for 10 percent of detections while anonymous tip-offs were responsible for uncovering 14 percent of frauds”. The 2016 Association of Certified Fraud Examiners (ACFE) Report to the Nations on occupational fraud and abuse states that tips from employees are the single most frequent source leading to the detection of fraud; over 40 percent of all cases were detected by a tip — more

than twice the rate of any other detection method. Hence, it is crucial that organizations stimulate employees who observe wrongdoing not to “look the other way or stick their head in the sand” (Kaptein 2011). A significant number of countries have passed legislation designed to protect whistleblowers, among those the most cited are Australia, the United States of America, New Zealand, the United Kingdom, South Africa, Japan, the Netherlands, Ireland, Canada, India, and Germany (Vandekerckhove and Lewis 2012). However, as discussed by Mansbach (2007) and Rachagan and Kuppusamy (2013), the introduction of new laws to encourage and protect whistleblowers effectively is not sufficient. And, this is demonstrated by evidence from “Whistling While They Work” (WWTW), a study of whistleblowing conducted between 2005 and 2007 across 304 public sector agencies in four Australian jurisdictions (Smith 2010), whose results showed that while reporting rates did not vary by jurisdiction, they did vary by organization.

It is from here we begin our analysis. Italy is in the early stages of developing whistleblowing legislation, having introduced a specific legislation for public administrations at the end of 2012. As already

stated, we believe that legislation alone is not sufficient for the development of effective whistleblowing, so our aim is to identify which variables are most important in encouraging the whistleblower. In doing so, we focus on internal whistleblowing. The literature draws a distinction between external whistleblowing, which means going outside the organization, and internal whistleblowing, which means informing relevant organization members about wrongdoing (Chiasson et al. 1995; Kaptein 2011). Some studies, for example the WWTW study, found that whistleblowers prefer to report first to someone inside their organizations, rather than externally to agencies such as anticorruption bodies (Miceli et al. 2008; Brown and Donkin 2008; Rothschild and Miethé 1999), as the former is less risky for the whistleblower and less detrimental to the organization (Miceli and Near 2002, Hassink et al. 2007). Given that whistleblowing is a very new phenomenon in Italy, we think that internal whistleblowing is of more significance than external whistleblowing.

Although our analysis only concerns whistleblowing in public administrations, the scope of our research is still very extensive since the new anti-corruption law and its whistleblowing provision regard

all Italian public administrations as well as the companies and agencies they control, for about 3 million employees.

The article is organized as follows: in the first and second paragraph, we introduce the status quo of corruption and whistleblowing in Italy; in the third paragraph, we review the literature and define our hypotheses; in paragraph four, we motivate our research and methodology, and in paragraph five, we test our hypotheses. We provide concluding remarks in the final paragraph.

## **CORRUPTION AND ANTI-CORRUPTION STRATEGY IN ITALY**

Corruption and fraud against public administration in Italy are endemic (Previtali and Cerchiello, 2017), as reported in the Transparency International rankings: in 2016 Italy was ranked 60° (61° in 2015, 69° in 2013 and 2014, 72° in 2012) out of the 176 observed countries on a corruption perception index that measures the perceived levels of public sector corruption. The Italian Court of Audit has pointed out that the total direct cost of corruption amounts to 60 billion euro each year (equivalent to approximately 4% of

GDP). This evaluation has been confirmed by other sources such as Greco - Group of States against Corruption Commission (2009). In this context and under these international pressures, Law 190 of November 6, 2012, the so-called "Anti-Corruption Law" introduced, for the first time in Italy, an organic system to prevent corruption and illegality in public administration. Law 190 requires that all public bodies should adopt:

- a) a corruption prevention plan that must identify the activities which pose a high risk of corruption and provide the mechanisms of formation, implementation and monitoring of decisions necessary to prevent the risk of corruption in the above mentioned activities;
- b) a person responsible for the prevention of corruption (compliance officer) who must assess the suitability of the corruption prevention plan and oversee both its implementation and operation and the effectiveness of the control procedures and processes;

- c) a code of ethics and conduct that defines the set of values, principles and guidelines for behavior to which employees should aspire to as part of their work;
- d) a risk analysis document that evaluates, for each activity, the probability that the risk will be realized and the possible consequences and impacts;
- e) specific risk prevention measures, which coincide with procedures and protocols that cover sensitive issues such as conflict of interest, the authorization to make appointments outside the company, incompatibilities and ineligibility for the top positions, the rotation of staff;
- f) last but not least, at least for our research, a whistleblowing system.

An initial evaluation of the current state of application of the law can be made thanks to the National Anti-Corruption Authority report (2015). Said report highlights the many gaps, problems, delays and oppositions that characterize the implementation process at various levels of Italian public administration, as well as the lack of attention that both politicians and administrators pay to the anti-corruption



policies and tools. In Annex 1 to the EU Anti-Corruption Report (2014), the European Commission highlights the same issues.

### **Whistleblowing**

In the general scheme of anti-corruption measures, whistleblowing appears not to be of interest to *Italian people*. There is little literature on this subject, almost no debate in public opinion and newspapers, and it is relatively insignificant in the Italian legal system. As stated by Greco (2009) the fight against corruption in Italy, “*requires a long term approach and sustained political commitment; combating corruption has to become a matter of culture and not only rules*”. The marginality of whistleblowing has necessarily cultural roots, followed by legal roots: there are no specific rules in Italy for the protection of whistleblowers in the private sector. Just a few private companies have established whistleblowing policies to comply with the US Sarbanes-Oxley Act, since they are subsidiaries of foreign companies registered in the US. This negative state of play finds confirmation in the international report “Whistleblower protection laws in G20 countries” (2014) and Greco (2011). The criticality of the contest is

confirmed in official data on external whistleblowing disseminated by government agencies. A report from the Anticorruption Service to the Italian Parliament (2011) registers just 300 complaints from October 2008 to December 2010. In 2015, under the 90/2014 Decree, the National Anti-corruption Authority established a new platform for whistleblowing but it only receives around 10 complaints a month about wrongdoing from public sector employees.

In this context, Law no. 190 is important because it introduced for the first time, provisions on the protection of whistleblowers who report corruption within the public sector. However, it is inadequate from several standpoints; for example, it does not specify the different ways and procedures in which employees can make a complaint, there is no provision on how to protect a whistleblower from retaliation, or on how to keep the whistleblower's identity secret. It is only very recently that public and political debate has begun to recognize the benefits of “public interest” whistleblowing and this is leading to an increased awareness in some public and legislation sectors. In fact, the National Anti-corruption Authority recently released guidelines (n° 6/2015) which contain specific indications on how to protect

whistleblowers from retaliation and how to build effective whistleblowing procedures.

## **LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT**

Despite the lack of interest and knowledge in Italy, whistleblowing has emerged in literature as one of the most recognizable and debated acts of ethical behavior in the workplace since the 70s and 80s (Vandekerckhove 2006; Teo and Caspersz 2011). One of the best known definitions of whistleblowing (Near and Miceli 1985) is ‘*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*’. Whistleblowing is a very complex phenomenon, based upon organizational, situational and personal factors (Nayir and Herzig 2012) such as institutional pressures (Pillay et al., 2017). Mesmer-Magnus and Viswesvaran’s (2005) meta-analysis identified 21 different articles on the subject of whistleblowing: qualitative and

quantitative methods have been employed to measure the antecedents of whistleblowing, describe the consequences of choosing to blow the whistle, compare different institutional approaches to whistleblowing, explore the whistleblowing decision-making process, and identify the various factors influencing the likelihood of whistleblowing actions. Some studies (Larmer 1992; Miceli and Near 1988; Street 1995) found a positive relationship between the loyalty of an employee to his company and the probability that he will report wrongdoing. Sims and Keenan (1998) found external whistleblowing to be significantly related to supervisor support, informal policies, gender, and ideal values and not significantly predicted by formal policies, organizational tenure, age, education, satisfaction or commitment. Caillier and Sa (2017) studies the relationship between leadership and whistleblowing attitudes. Individuals from certain nationalities and belonging to specific cultures view whistleblowing in a different way than people from other cultures might (Brody et al. 1998; Ergeneli 2005; Gernon 1993; Thomas and Miller 2005). MacGregor and Stuebs (2014) found evidence that the willingness to rationalize fallacious silence is related to community and cultural influences and

personal traits. Taylor and Curtis (2010) tested the theory of Layers of Workplace Influence, and analyzed the effect of professional identity, locus of commitment and moral intensity (O' Sullivan and Ngau 2014). The study conducted by Ching-Pu Chen and Chih-Tsung Lai (2014) shows that while moral intensity and social pressure are correlated with whistleblowing intention, whistleblowers can be grouped into four conceptual types. At the same time, there are also some opposing results: the study by Cassematis and Wortley (2013) conducted on a sample of Australian public sector employees demonstrated that personal variables such as demography, work attitudes and employee behavior do not affect the willingness to blow the whistle. Starting from these studies, we developed a research model (Figure 1) whose aim is to test the three variables that we believe are most important in encouraging whistleblowing in Italian public administrations.

The first variable is the size of the organization. We believe that it must be taken into consideration, especially as the object of our study is public administrations with a hierarchical organizational model and top down communications. In fact, the size of an organization affects

many organizational characteristics. Over one hundred studies have addressed the effect of size on organizational structure (Daft 2016). As organizations grow larger, they tend to develop bureaucratic characteristics, becoming more formalized and complex in order to cope with their increasing size (Reimann 1973; Kimberly 1976; Dewar and Hage 1978; Daft and Bradshaw 1980; Hsu et al. 1983; Geeraerts 1984). Although bureaucracies have many positive aspects, they may also stifle upward communication and this can influence the willingness to blow the whistle. Furthermore, whistleblowing may be affected by the structural levels within the hierarchy, because the distance between communicating parties and the number of sequential links can inhibit internal communication flow (Granville 1999). Employees may perceive that it is difficult or impossible to get the attention of appropriate managers on issues they feel to be crucial, and may perceive themselves as uninfluential or unable to bring about change in a wrongdoing (Miceli and Near 1992). Along these lines, internal whistleblowing risks being less open and frequent in hierarchical, bureaucratic, or authoritarian organizations (Near and Miceli 1987). And, even more so in public administrations, where a

centralized and bureaucratic organizational structure is a fundamental characteristic, as described by the works of Weber, Crozier and Merton. These reflections lead to our first research hypothesis:

*Hypothesis 1: The smaller the (public) organization, the more frequent the (internal) whistleblowing.*

The second variable is the presence of specific procedures for whistleblowing. As shown by the research conducted by Harold Hassink, Meinderd de Vries and Laury Bollen (2007) on a sample of 56 leading European companies, procedures and specific policies are fundamental for whistleblowing. Various studies have found that organizational structures that have clear and proper channels for the disclosure of unethical behavior encourage employees within the organization to report a wrongdoing (Miceli and Near 1984; Stewart 1990). Mathews (1987) emphasizes the important role of clear organizational policies with respect to ethical issues in organizations. Keenan (1990) found that the existence of specific policies and practices was associated with positive perceptions about the adequacy of company encouragement of whistleblowing. Barnett too (1992), supported the hypothesis that organizations with developed policies

would increase internal whistleblowing. De Graaf (2015) studies the role of the confidential integrity advisor as one possible part of an internal reporting system. According to Vandekerckhove and Commers (2004) whistleblowing is just “the set of procedures that allow potential whistle blowers to raise the matter internally before they become whistle blowers in the strict sense”. Finally, considering that the threat of retaliation is negatively associated with intentions to report wrongdoing (Gundlach et al. 2003; Mesmer-Magnus and Viswesvaran 2005; Miceli et al. 2009), the presence of a set of procedures allows employees to be aware of the protection available for whistle blowing and how to avoid retaliation, and this in turn increases the likelihood of blowing the whistle (Rachagan and Kuppusamy 2013). Providing employees with more than one reporting method also tends to increase the willingness for fraud reporting (Gundlach et al. 2003). If we consider that whistleblowers challenge institutional order (Avakian and Roberts 2012), and that institutions are governed by the norms, rules and interests of the members that represent them (DiMaggio and Powell 1983; Scott 1995), it is essential that whistleblowers are supported with a set of



procedures and regulations that help reinforce the “new order and structure”. This leads to our second research hypothesis:

*Hypothesis 2: whistleblowing is positively associated with formal procedures, which encourage individuals to actually blow the whistle.*

Finally, the third variable is training. In order to encourage employees to ask questions early and pick out unethical or illegal practices, it is necessary to both teach them how to deal with situations when wrongdoing occurs within an organization through specific training on whistleblowing procedures and policies, and reassure them there will be no retaliation (Mazerolle and Brown 2008; Rachagan and Kuppusamy 2013). This can be achieved through general training on ethics and anti-corruption strategies (Moran, Flanary and Doig 1999) and the creation of a culture that promotes the reporting of wrongdoing (Lewis 2011). As suggested by the WWTW study (Smith 2010), one of the most important keys to promoting whistleblowing is the diffusion of information about good whistle-blowing procedures through well-trained managers and specialist staff who offer specific support for whistleblowers. Hence, our third research hypothesis:

*Hypothesis 3a: Whistleblowing is associated with training employees about anti-corruption strategy.*

*Hypothesis 3b: Whistleblowing is associated with training employees specifically about whistleblowing.*

## **METHODOLOGY**

We carried out empirical research on the application of Law 190 and whistleblowing procedures in 86 hospitals (out of the 114 Italian public hospitals), 137 health agencies (out of 139), 39 universities (out of 68) and 103 major municipalities (out of 107) for a total of 365 public administrations. In Italy, the Ministry of Health is responsible for public health at the national level. The regions are responsible for organising and delivering health care at the local level; they supervise and coordinate the activities of the health agencies that are in charge of delivering public health, community health services and primary care services, and of the hospitals that are responsible for the delivery of secondary and specialist care. Major municipalities are the 107 municipalities that are the administrative divisions of the

Italian Provinces. The sample of observed universities includes just the public ones, since Law 190 only applies to public bodies.

Our analysis focuses on the annual reports that all the public administrations were required to submit and publish by 31 December 2016 to the National Anti-Corruption Authority. They are therefore official reports, which have great validity in testifying which corruption prevention strategies are actually being implemented, or on the contrary to what extent compliance to anti-corruption legislation is still an application more of form than of substance. Despite the disclosure of these reports being compulsory, 28 hospitals, 2 health agencies, 29 universities and 4 major municipalities did not publish any data.

In order to test our research hypotheses, our model brings together the three variables with the indicator that we believe in this analysis serves as a performance indicator, namely the number of reports received (P) by the compliance officer (table 1).

**INSERT TABLE 1**

For the first variable named *size of public entity*, the best indicator would have been the total number of employees. However, this data was not available and so we have used a variable that was common to all the entities considered, despite their differences. We chose to use the number of users served by the entities: for healthcare companies - the number of people assisted; for the major municipalities - the resident population; and, for universities - the number of registered students. Finally, for hospitals, there is no available data on the number of admissions/people assisted, and so we have used an economic indicator that corresponds to the value of production instead. This information is available from the official database of the Ministry of Health and the Department of Public Administration.

The second variable named *level of proceduralization* is firstly measured through a dummy variable which identifies whether or not procedures are present, and then in a positive case via a measurement, in increasing order of organizational and procedural articulation, corresponding to four types of procedures:

- The first procedure is paper based, with paper forms to fill out which can either be placed in a box for the compliance officer or sent directly by post;
- The second procedure is an email address dedicated to receiving complaints;
- The third procedure is specialized software dedicated to the management of whistleblowing, where the information flow and its proceduralization are guaranteed. In this case, the types of complaint that can be made and what protection the person complaining can expect are well defined;
- The fourth procedure is a variant on the third procedure, with the addition of encryption and security systems that further guarantee the person reporting that their identity will remain private.

Finally, the third variable named *education* is measured through a dummy, which distinguishes general training on anti-corruption and ethics from specific training on whistleblowing. The database provided by the National Anti-corruption Authority does not contain specific information about modus and form of provided training. In general, these courses were attended by all the employees, with in-

depth sessions for the employees that have a greater exposure to wrongdoing. The providers and forms of training are very heterogeneous: from public providers to consultants, lawyers, and the National Association of Italian Municipalities, to in-house training, and face to face as well as distance learning methods.

### **INSERT FIGURE 1**

Figure 1 is a diagram of the three tested hypotheses in which we model the number of reports by size, proceduralization levels, and specific education on anti-corruption and whistleblowing. We used two control variables: the first is geographical area by using dummy variables representing the three geographical areas (North, Centre, South & the Islands) as categorized by the Italian National Institute for Statistics (Istat), the second is the magnitude of the risk by using the number of situations under investigation by the Office of the Prosecutor for crimes under Law No. 190 (source: National Anti-corruption Authority).

Each hypothesis is tested through a count model represented by the multivariate Poisson regression model, followed by a stepwise

selection procedure based on the AIC index (Akaike Information Criterion) to evaluate the best model configuration in terms of significant variables. The choice is a natural consequence of the measurement type of the target variable P that is, as already defined previously, the number of reports that have been registered in the given administration. The Poisson regression model belongs to the family of generalized linear models (GLM, see Agresti 2013) and assumes a count target variable distributed according to a Poisson distribution and a logarithm link function.

To avoid useless bias being introduced by the different natures of the considered administrations, the Poisson models were run separately for the 4 groups of observations. This guaranteed the homogeneity of the data used for each model especially with regards to the target variable.

## **RESULTS**

In Italian public administrations “whistle blowing” is still in its early stages. In 296 institutions out of the total 365, no reports were made. Of the remaining 69 institutions (19% of the sample), the total

number of whistleblower reports amounted to 190. In institutions where there was at least one report, the range is from a value of one to a maximum value of 12, with an average of almost 3 reports per institution and small standard deviations (Table 2). The results for the four types of institution analyzed were very similar as regards both the number of institutions where reports were made (from 15-20% of entities) and the average number of reports (between 2 and 3).

## **INSERT Table 2**

*Hypothesis 1: The smaller the public organization, the more frequent the internal whistleblowing.*

Our first step was to investigate the possible linear correlation between the two variables. This analysis was conducted separately for the 4 types of administration and obtained the following interesting results:

## **INSERT TABLE 3**

From Table 3 the reader can see a non-homogeneous pattern in the correlations. The lowest value is shown by Hospital administrations



but there is no evidence of a linear correlation between the number of reports and the relative dimension (size), and the associated p-value is not at all significant. It may be that the measurement used biased the results; however, there was no alternative option for obtaining such information. With regards to the other administrations, we can observe fairly small correlations, between 20% and 30%, estimated on reliable samples of more than 100 units. University institutions deserve a different evaluation: correlation is high at almost 50%; however, given the limited number of observations (36), we suspect that the correlation could be overestimated and needs further investigation.

To further investigate our hypothesis we ran four Poisson models of the number of reports  $P$  as a function of the size of the organizations. The results shown in Table 3bis substantially confirm the linear correlations reported in Table 3. The only notable difference regards Hospital organizations that present a slightly significant positive impact not underlined by the linear correlation.

As already described, the principal literature suggests that, large bureaucracies tend to smother communication flows inside

organizations, which in turn has a negative impact on whistleblowing. Our results tend to suggest the opposite. Although the results depend on the type of institution and there is no homogeneity among them, our analysis seems to confirm that the larger the organization, the more whistleblowing occurs.

*Hypothesis 2: whistleblowing is positively associated with formal procedures, which encourage individuals to actually blow the whistle.*

We argue that given the sensitivity of the tool, a crucial stage in the adoption of whistleblowing is the definition of one or more protected channels that can ensure the flow of information within the organization. With regard to our research, 25 Universities, 64 Hospitals, 91 Health Agencies and 60 Municipalities have so far adopted a procedure for whistleblowing, for a total of 240 organizations. The analyzed systems are fairly unsophisticated. Most of the public administrations (158) adopt a paper-based procedure and a procedure based on an e-mail system (166), only a few have a specifically dedicated information system (21) and a specially dedicated information system with internal cryptographic mechanisms (43).

#### **INSERT TABLE 4**

Our analyses show that the health sector is the most proceduralized, with most of their institutions having whistleblowing procedures in place. For all four types of organization, the most common procedures are those based on reporting by e-mail, followed by paper-based procedures. The other two procedures are much less common, but where they are used there is a preference for information systems with an encrypted system. Here too, the health sector has implemented more sophisticated procedures than the universities and municipalities.

In Table 5 we show results based on the estimation of a Poisson model for each organization type. We take into account not only the variable ‘Procedure’, the presence of at least one type of reporting, but also the level of risk and the size of the organization.

#### **INSERT TABLE 5**

Our results confirm the second research hypothesis: whistleblowing is positively associated with formal procedures; having a proceduralization system in place (X) shows a positive impact on the number of reports of wrongdoing (Y) for all organizations except the major municipalities.

We looked at whether a specific level of proceduralization can have a positive impact on the number of reports. However, since different types of reporting can be used within the same organization we fit a multivariate Poisson model for each type of institution. To avoid multicollinearity we checked the level of correlation among the types of proceduralization.

#### **INSERT TABLE 6**

Table 6 shows the high level of correlation between the paper-based procedure and the e-mail based procedure for all the institutions. For this reason, we removed the less sophisticated procedure (paper based) from the analysis and considered only the remaining ones.

#### **INSERT TABLE 6 bis**

Table 6 bis shows the significant impact and benefits a proceduralization system has, if the organization adopts a dedicated information system with internal cryptographic mechanisms and security systems. For the other type of procedures, the empirical evidence is less clear: a significant coefficient appears only for some specific procedures in some organizations and in some cases, it is even negative.

*Hypothesis 3: Whistleblowing is associated with training employees about anti-corruption strategy and more specifically about whistleblowing.*

As we saw above, training is unanimously recognized as a key moment to teach ethics, to sensitize daily behavior, and to enable compliance and to positively influence organizational behavior. In our research, 321 organizations (90% of the total) have trained their employees on ethics and anticorruption general concepts, and 217 organizations (59%) have developed specific training on whistleblowing procedures. We supposed a positive relation between training (X) and performance (Y). Our results are twofold: again, we do not find a homogenous trend across the institutions. Looking at

general training, we did not discover a positive impact on the number of reports. All the organizations present insignificant parameters, which suggests that general training regarding anti -corruption does not provide any useful effects (Table 7).

#### **INSERT TABLE 7**

On the other hand, if we look at specific whistle blowing training, there is a positive relationship for Hospitals and Health Agencies and a negative one for Universities (table 8).

#### **INSERT TABLE 8**

There is also a difference between health institutions and the other institutions: only for the former does investing in specific training appear worthwhile, while the latter appear to still be at an initial stage in the internalization of the whistle-blowing issue.

### **DISCUSSION**

Our research shows that whistleblowing in Italy is still in an embryonic stage. The law establishing it as a compulsory measure for all public authorities came into force in 2012, but the results are disappointing. Of the four areas of public administration analyzed,

Hospitals and Health Agencies seem to be slightly more responsive to the implementation of a whistleblowing system compared to Universities and the Major Municipalities, but overall the situation is critical. In 296 institutions out of the total 365, no reports were made. Of the remaining 69 institutions, the total number of whistleblower reports amounted to 190, with an average of almost 3 reports per institution, mostly based on a paper-based procedure for reporting. It is therefore of interest to try and understand how this measure, which in other countries has been consolidated for many years now and is leading to excellent results in the fight against corruption and fraud, can be developed. Hence our decision to model the determinants of whistleblowing, with particular reference to three variables: the size of the organization, the proceduralization of the whistleblowing system and training.

As regards the size of the organization, our results are in contrast with what the literature suggests. Whistleblowing appears to function better, not in small and medium sized organizations, but in large ones. This result tends to highlight the need to contextualize the relationship between organizational size and whistleblowing. In our context, we

have to consider that the risk of retaliation is very real, since there are no specific rules in Italy for the protection of whistleblowers in either the private or the public sector. The National Anti-corruption Authority in its Annual Report to the Parliament on 2 July 2015 stated, *“The whistleblower system is struggling to get off the ground because the regulatory protection is considered inefficient”*. Hence, whistleblowing is probably more likely to occur in medium to large size organizations where the risk of being identified and accused by colleagues is probably lower. In this case, a large organization, with a bureaucratic and formalized structure, can provide depersonalized communication flows, as well as feedback loops about the outcomes of investigations and proposed remedial action. The latter are crucial to reassuring employees that their concerns will be taken seriously, that instances of malpractice will be identified and dealt with appropriately, and that continuous feedback and progress updates to whistleblowers will be provided. In addition, we have to consider that our sample is composed of professional organizations. As stated by Mintzberg (1979) this kind of organization – called professional bureaucracy – tends to decentralize their structure in both the vertical



and horizontal dimension. More decentralized decision making can increase the propensity to blow the whistle (Vandekerckhove and Commers 2004), and in our context the requirements of a complex but stable environment, identified by Mintzberg for this kind of structure as chief contingency factors, can be better provided by larger organizations. Moreover, professional organizations – such as universities and health organizations – are unusual bureaucracies since they are often characterised as loosely coupled systems (Weick, 1976). According to Laufer and Geis (2002) “Organizations that are tightly coupled face increased risks of criminal liability. Corporations tend toward decentralized, divisionalized, loosely coupled structures as they mature in size and specialization”. It is particularly in this kind of organization that an increase in size corresponds to a major capacity to react to wrongdoing (Keane 1995). As described above, King’s empirical study (1999) demonstrated that an organisation with numerous hierarchical levels may discourage internal disclosure, but loosely coupled organizations with open communication flows and the development of uncoupling practices and feedback loops (Perry

1998) can enhance trust between the various managerial levels, and make disclosure of wrongdoing easier.

Proceduralization was confirmed as a best practice. The presence of a proceduralized system is crucial to convincing employees to blow the whistle. Again, considering the fear of retaliation and employment discrimination it is not surprising that systems with dedicated encryption that protect the informant's identity are much more effective than the other kinds of procedures, such as paper and e-mail based procedures.

As regards training, here too, our research leads to a slightly different result from what is widespread in the literature. Training, both on general ethics issues and more specifically on whistleblowing, seems not to impact on the probability of reporting, even if the latter seems to be more effective than the former. This result can probably once again be explained by looking at the Italian cultural context, and the need to allow more time for a greater dissemination of corruption prevention systems.

## **LIMITATIONS**

The major limitations of this study are related to the sample. By observing a one year sample period only, our findings may not generalize to other years and do not enable us to verify whether there is a learning effect in using these tools. In addition, since the sample is composed solely of Italian public administrations, we have no opportunity for meaningful industry or sector analysis or cross country analysis. In addition, we focused our research on three variables due to the availability of data, but it is clear that this is an oversimplification of the observed phenomena, whose determinants are really more complex. From here, aside from the analysis of the official reports provided by the Italian National Anticorruption Agency, it would be interesting to analyse other sources of information, and carry out case study analysis and qualitative research.

## **CONCLUSIONS AND DIRECTIONS FOR FUTURE RESEARCH**

In conclusion, like all corruption prevention measures, if whistleblowing is to function, it requires an organizational and

cultural context that encourages employees to ask questions early and pick out unethical or illegal practices. The suggestion for policy makers and for those who have a senior position in Italian public administration is to continue to invest in training and in the correct proceduralization of the whistleblowing system; including introducing sophisticated systems to protect the informant's identity. A further measure worth thinking about is the development of a reward system that provides incentives for whistle blowing. While this may not lessen employees' fears of retaliation, it would give them a financial inducement to step up. Also, given that whistleblowing is in its initial stages and people do not yet perceive the fight against corruption as a priority, it would be useful to identify some official recommendations regarding the process of introducing and developing whistleblowing procedures in the organization. As said before, the first step is to put comprehensive and clear legislation in place in order to protect employees who blow the whistle in good faith from retaliation, discriminatory or disciplinary action. After that, organizations must define clear procedures and channels for facilitating the reporting of wrongdoing and corruption, including actions for protection against

retaliation. These procedures and channels must be promoted through a process of disseminating existing information, as well as awareness-raising activities to encourage the reporting of wrongdoing. In particular, employers should be aware of the seven “Wh” questions: when is it time to blow the whistle; why and for what reasons to blow the whistle; what kind of wrongdoing must be reported; who is involved in the procedure; to whom should the disclosures be made and through what channels should wrongdoing be reported; what are the pros and cons of blowing the whistle; and, what happens after the reporting. As suggested by Gong et al. (2015) it is crucial to address the deficit in people's understanding of corruption in order to achieve the desired anti-corruption effects. Finally, the organization should have a compliance officer who should appoint a person to investigate the allegations who has the skills required for this kind of investigation, as well as independence, discretion and experience. In addition, in order to create a culture of openness and honesty, it is important that employees hear about whistleblowing regularly and positively. Top management should make every effort to demonstrate a strong commitment to encouraging whistleblowing and ethical

behavior, and this message must be communicated by middle managers at all levels of the organization, as well as through company newsletters and speeches to personnel.

As regards the avenues for future research, we believe that future work using inter-temporal modeling could build upon and extend the insights presented here. A second area for future work would be to examine individual case studies and develop the analysis of the determinants of whistleblowing more at an organizational level than at the system level. Thirdly, when the whistleblowing system has reached greater maturity, it would be interesting to compare public authorities and private companies, as well as external and internal whistleblowing.

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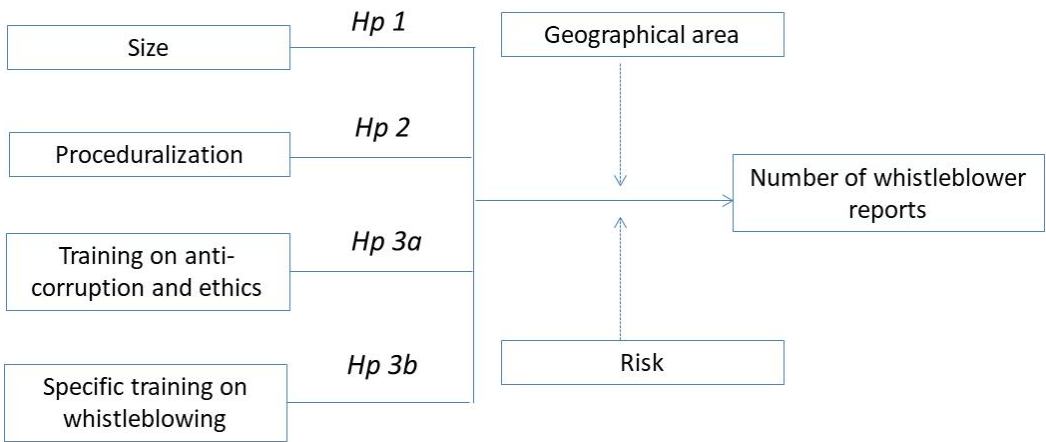
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**Figure 1 Research**

<b>Variable</b>	<b>Definition</b>	<b>Measures</b>	<b>Data sources</b>
Performance	Number of reports received by the compliance officer	Count variable	Annual report submitted to the National Anti-Corruption Authority
Size	Size of the public entity	<ul style="list-style-type: none"> <li>- for healthcare companies: the number of people assisted</li> <li>- for the municipalities: the resident population</li> <li>- for universities: the number of registered students</li> <li>- for hospitals: the value of production</li> </ul>	<ul style="list-style-type: none"> <li>- Ministry of Health database</li> <li>- Department of Public Administration database</li> <li>- Ministry of Education and University database</li> <li>- Ministry of Health and the Department of Public Administration databases</li> </ul>
Level of proceduralization	Whether or not procedures are present, and then in a positive case via a measurement in increasing order of organizational and procedural articulation corresponding to four types of procedure (paper based, e-mail based, information systems, information systems with encryption and security system)	Dummy variables	Annual report submitted to the National Anti-Corruption Authority
General training	General training on anti-corruption and ethics	Dummy variables	Annual report submitted to the National Anti-Corruption Authority
Specific training	Specific training on whistleblowing	Dummy variables	Annual report submitted to the National Anti-Corruption Authority
Geographical area	Place where organization provides its services	Dummy variables	The National Institute for Statistics
Risk	Number of situations under investigation by the Office of the Prosecutor for crimes under Law no. 190	Count variable	National Anti-Corruption Authority

**Table 1 Description of the variables used in the analysis**

	Hospitals	Health Agencies	Universities	Major Municipalities
Total number of institutions	86	137	39	103
Number of reports	40	84	27	39
Number of institutions with at least one report	13	34	12	15
% of institutions with reports/total institutions	15%	25%	18%	15%
Average number of reports per institution	3,08	2,47	3,86	2,60
Maximum number of reports per institution	7	8	12	8
Minimum number of reports per institution	1	1	1	1
Standard deviation of number of reports	1,33	1,46	2,17	1,21

**Table 2 Number of reports by public organization type**

<i>Rho Pearson</i>	<i>Hospitals</i>	<i>Health Agencies</i>	<i>Universities</i>	<i>Major municipalities</i>
<i>Index</i>	0.14	0.20	0.47	0.30
<i>P-value</i>	0.193	0.015	0.002	0.001

**Table 3 Linear correlation between organizational size and whistleblowing**

<i>Organization</i>	<i>Hospitals</i>	<i>Health Agencies</i>	<i>Universities</i>	<i>Major Municipalities</i>
<i>Intercept</i>	-0.791	-0.570	-0.988	-1.34
<i>Size</i>	0.174	0.366***	0.951***	0.80***
<i>Res Deviance</i>	161.82	263.33	72.391	139.57
<i>AIC</i>	202.85	355.12	96.46	182.95

**Table 3bis Results from Poisson Model concerning the number of reports as a function of the organization size. The numbers represent the estimated parameters and the asterisks the relative significance**



	Hospitals	Health Agencies	Universities	Major Municipalities	TOTAL
Number of institutions adopting at least one type of proceduralization	64	91	25	60	240
Number of institutions adopting paper based procedure	32	59	25	42	158
Number of institutions adopting e-mail based procedure	42	65	17	42	166
Number of institutions adopting ad hoc information system based procedure	4	12	1	4	21
Number of institutions adopting ad hoc encrypted information system based procedure	13	18	4	8	43

**Table 4 Levels of proceduralization**

<i>Organization</i>	<i>Hospitals</i>	<i>Health Agencies</i>	<i>Universities</i>	<i>Major Municipalities</i>
<i>Intercept</i>	-2.45	-1.099	-2.457	-1.30
<i>Procedure</i>	1.02.	0.626*	1.024.	Excluded by stepwise regression
<i>Risk</i>	0.21***	0.004	0.212***	-0.020
<i>Size</i>	0.802***	0.326***	0.802***	0.901***
<i>Res. Dev</i>	47.11	236.44	47.11	136.55
<i>AIC</i>	75.19	328	75.19	181.92

**Table 5 Results from Poisson Model regarding the presence of proceduralization, the numbers represent the estimated parameters and the asterisks the relative significance**

<i>Hospital</i>	<i>Paper</i>	<i>E-mail</i>	<i>Information system (IS)</i>	<i>Information system (IS) with encryption and security system</i>
<i>Paper</i>	1.000			
<i>E-mail</i>	<b>0.451</b>	1.000		
<i>IS</i>	0.173	0.005	1.000	
<i>IS with encryption and security system</i>	0.145	-0.153	0.060	1.000
<i>Hospital</i>	<i>Paper</i>	<i>E-mail</i>	<i>Information system (IS)</i>	<i>Information system (IS) with encryption and security system</i>
<i>Paper</i>	1.000			
<i>E-mail</i>	<b>0.590</b>	1.000		
<i>IS</i>	0.252	0.274	1.000	
<i>IS with encryption and security system</i>	0.010	-0.109	0.262	1.000
<i>Hospital</i>	<i>Paper</i>	<i>E-mail</i>	<i>Information system (IS)</i>	<i>Information system (IS) with encryption and security system</i>
<i>Paper</i>	1.000			
<i>E-mail</i>	<b>0.368</b>	1.000		
<i>IS</i>	0.205	0.185	1.000	
<i>IS with encryption and security system</i>	-0.093	-0.127	-0.054	1.000
<i>Hospital</i>	<i>Paper</i>	<i>E-mail</i>	<i>Information system (IS)</i>	<i>Information system (IS) with encryption and security system</i>
<i>Paper</i>	1.000			
<i>E-mail</i>	<b>0.477</b>	1.000		
<i>IS</i>	-0.064	0.139	1.000	
<i>IS with encryption and security system</i>	0.054	-0.019	-0.058	1.000

**Table 6 Correlations among the different levels of proceduralization that can be adopted within an organization.**

<i>Organization</i>	<i>Hospitals</i>	<i>Health Agencies</i>	<i>Universities</i>	<i>Major Municipalities</i>
<i>Intercept</i>	-0.69840	-1.21959	-2.457	-1.00911
<i>E-mail</i>	-2.45539*	0.51679***	1.024.	Not significant
<i>IS</i>	Not significant	Not significant	0.212***	Not significant
<i>IS with encryption and security system</i>	0.58604***	0.24317**	0.802***	0.23492*
<i>Res. Dev</i>	61.025	256.17	47.11	166.39
<i>AIC</i>	89.1	351.95	75.19	213.77

**Table 6 bis Results from Poisson Model regarding the level of proceduralization, the numbers represent the estimated parameters and the asterisks the relative significance**

<i>Organization</i>	<i>Hospitals</i>	<i>Health Agencies</i>	<i>Universities</i>	<i>Major Municipalities</i>
<i>Intercept</i>	-2.197	-0.9163	-15.30	-1.2809
<i>General Training</i>	Not significant	Not Significant	Not Significant	Not Significant
<i>Res. Dev</i>	161.47	278.75	111.87	170.40
<i>AIC</i>	202.5	370.53	135.94	213.77

**Table 7 Results from Poisson Model regarding the level of general training, the numbers represent the estimated parameters and the asterisks the relative significance**

<i>Organization</i>	<i>Hospitals</i>	<i>Health Agencies</i>	<i>Universities</i>	<i>Major Municipalities</i>
<i>Intercept</i>	-1.4759	-1.2040	-1.2238	-1.0629
<i>Specific WB Training</i>	1.0098*	0.9059**	-1.2238*	0.1874
<i>Res. Dev</i>	157.47	269.29	105.65	170.69
<i>AIC</i>	198.49	361.07	129.73	214.06

**Table 8 Results from Poisson Model regarding the level of whistleblowing training, the numbers represent the estimated parameters and the asterisks the relative significance**

