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EXPOSURE TO MEDIA AND CORRUPTION PERCEPTIONS

by Lucia Rizzica* and Marco Tonello*

Abstract

We analyse the impact of exposure to corruption news on individuals' perceptions about the extent of the phenomenon. To this purpose, we take information on individuals' perceptions of the likelihood that corruption events may occur in everyday life and combine it with a dataset containing the number of news items related to corruption that appeared on the homepages of the websites of the 30 most widely read national and local newspapers on the day on which the individual was interviewed. Results show that increasing potential exposure to corruption news by one standard deviation causes an increase in corruption perception of about 3.5 per cent and a decrease in trust in justice effectiveness of about 5.2 per cent. We suggest that these effects are mainly driven by a persuasive mechanism rather than by a learning process so that individuals' perceptions about corruption appear to be biased by media content.

JEL Classification: D84, K42, K49.
Keywords: corruption perceptions, media, newspapers.

Contents

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1 Introduction[1]

While understanding the effects of corruption on the (mis)allocation of resources is at the heart of most economic and political debate, answering the question of how we can measure the extent of corruption presents a major preliminary challenge. Indeed, corruption is, by definition, a secretive act, even more so than most crimes as it does not have a clearly identified victim who may have an interest in reporting the crime. So how can we study something that we cannot measure? How well do existing measures of corruption, mostly based on individuals' perceptions, reflect actual levels of public sector corruption? Cross-national corruption perception measures have come under much theoretical and empirical scrutiny in recent years, which has serious implications for the validity and reliability of the data. Several scholars have argued that perceptions of corruption do not reflect actual levels of corruption because they are biased by external factors such as economic performance, characteristics of individuals and local conditions (Charron, 2015). Moreover, a number of recent empirical studies, mainly focusing on developing areas (Olken and Pande, 2012), have put forth evidence that outside experts' assessments of corruption correspond little, if at all, to the experience and views of citizens, thus casting a shadow on the validity and reliability of existing measures of corruption based on perceptions.

In this paper we focus on one potential channel that might bias individuals' perceptions about corruption, i.e. exposure to corruption related media content. A growing body of literature has shown that media content has the potential to affect the behavior of individuals and therefore has significant economic consequences. This is true for consumption and savings behaviors (Bertrand et al., 2010; De Paola and Scoppa, 2014), as well as for voting choices (Della Vigna et al., 2014; Barone et al., 2015), violent behaviors (Dahl and Della Vigna, 2009) and family formation decisions (Chong and La Ferrara, 2009; Bassi and Rasul, 2015). In principle, exposure to corruption news reported by the media could serve as an important tool for individuals to gain more *information* about the magnitude of the phenomenon. However, if the media reports excessively on corruption scandals and news even in the absence of real corruption events, this might lead to a *bias* in the formation of individuals' perceptions about the extent of corruption in a society. On top of that, increasing the bias in individual perceptions might result in the formation of biased beliefs through a multiplier effect.

We draw from two original data sources to uncover the causal effect of exposure to related

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media content on individual perceptions of corruption and of the effectiveness of activity to combat corruption. Perceptions of corruption are derived from a set of specific questions contained in the 2014 wave of the *Italian Survey of Household Income and Wealth*, conducted by the Bank of Italy on a representative sample of about 1,800 heads of households. The survey contains several questions aimed at capturing individual perceptions of how widespread corruption is and how effective police investigations and the judicial system are in combatting it. Over the same period in which the survey interviews were conducted, we collected daily information on corruption news and scandals that appeared on the front pages of 30 online newspapers. The type of news we recorded includes not only factual reporting on corruption, such as arrests or judicial sentences for bribes, but also, for example, politicians' speeches and statements about the fight against corruption or information on the release of institutional reports on the spread of corruption across countries. Combining these two sources of data and exploiting the random scheduling of the interviews, we manage to identify the causal effect of interest.

The results show that there is a positive causal relationship between exposure to corruption news and perceptions of corruption. This relationship is stronger for the question on the survey describing the most serious cases of corruption, which individuals are least likely to have experienced directly. Interestingly, with regard to perceptions about the effectiveness of measures to combat corruption, only that on the effectiveness of the judicial system is (negatively) affected by media exposure, while that on the effectiveness of investigations is not.

Our work contributes to the literature in several respects. First, we provide evidence on media persuasion as it relates to beliefs about corruption, an aspect that has never been investigated before. We show that a causal relation exists between media coverage of corruption news and perceptions about the spread of corruption and the effectiveness of the justice system. This, in turn, provides indirect evidence that corruption indicators that are based on perceptions can be misleading, but also has potential major implications in terms of voting behavior and investment decisions. Secondly, thanks to the ampleness of our data, we are able to investigate the determinants of corruption perceptions at the micro level, and test whether characteristics such as gender, education, occupation and the frequency of interaction with public officers have an effect in shaping these perceptions. Finally, we provide some tentative evidence on the mechanisms underlying the identified effect and suggest that individuals are more affected by news that report 'claims' about corruption ('bias channel') than by those that report actual 'facts' ('learning channel').

The remainder of the paper is organized as follows. Section 2 reviews the relevant literature;

Section 3 describes the data sources used and provides general descriptive evidence; Section 4 illustrates the identification strategy and discusses the possible sources of confounding factors; Section 5 provides the baseline results; Section 6 provides a battery of robustness and sensitivity checks; Section 7 discusses the potential channels and Section 8 presents our conclusions.

2 Related literature

This paper is related to two main strands of the literature. First, it contributes to the literature on corruption measurement. As corruption is a largely unobserved phenomenon, many scholars have studied how to best uncover corruptive practices and have drawn attention to the main shortcomings and advantages of existing methodologies. Second, our work contributes to the recent and growing literature that investigates the influence of media on beliefs and perceptions. This stream of literature on *persuasion* employs approaches from psychology to incorporate aspects of bounded rationality into the agents' decision making processes. In what follows, we briefly review the evidence along these two lines found in the existing literature.

Measuring corruption. Since it is impossible to fully observe corruption, scholars have moved towards using measures that are based on subjective estimates, or *perceptions*, of corruption rather than on measuring the actual amount of bribes paid or actual thefts or misuse of public resources.[2] Micro founded studies seem to confirm that perceptions do contain some information about the true extent of corruption. Fisman and Miguel (2007) for instance, studied the parking practices of UN diplomats of different nationalities residing in New York and found that there is a strong positive correlation between the level of corruption in the diplomat's home country − as predicted by perception indices − and the actual amount of each diplomat's accumulated unpaid parking tickets, a proxy for propensity towards illegal behaviors. Olken (2009) examined the accuracy of corruption perceptions by comparing Indonesian villagers' reported perceptions of corruption in a road-building project in their village with a more objective measure of missing expenditures for the project. The results showed that villagers' perceptions do contain some information about the real level of corruption in the project, even if the magnitude of the perceived corruption is smaller than the objective measure and the level of perceived corruption responds little to changes in actual corruption.

[2]Indicators of this type range from The Economist Intelligence Unit's Business International Indicators, to the World Bank Governance Indicators, the Transparency International Corruption Perceptions Index, the Global Corruption Barometer, and the European Commission Eurobarometer. Economists have largely used these data to run cross-country regressions on various aspects: Mauro (1995); Knack and Keefer (1995) estimated the impact of corruption on growth, La Porta et al. (1999) investigated the determinants of cross-country differences in government quality and corruption, Fisman and Gatti (2002) studied the relationship between fiscal decentralization and corruption, and Fredriksson and Svensson (2003) studied that between political instability and corruption.

Other studies have questioned the reliability of perception based corruption measures, suggesting that perceptions may deviate from experience in systematic ways that may eventually overturn cross-country rankings based on perception indices. Indeed, these are likely to be affected by individual or country specific characteristics even holding the experience of corruption fixed (Banerjee and Hanna, 2012; Donchev and Ujhelyi, 2014). First, there is a problem of defining corruption. While a common and broad definition is that 'corruption is the misuse of public office for private gain' (Svensson, 2005), the boundary between what is corruption and what is not is in the end defined by law. Yet, laws differ across countries and sometimes even within countries. Second, and most importantly, there may be significant differences in cultural and social norms across and within countries so that citizens of one area may find certain practices more acceptable than citizens of another area, which would, for this very reason, be judged to be more corrupt according to opinion-based indices.[3]

In the light of these limitations, the most recent economic literature has moved towards developing new tools to measure the extent of corruption. Some have tried to refine surveys on actual practices in order to elicit truthful answers: Svensson (2003) gathered information from a sample of Ugandan firms about the amount of bribes they were actually paying; Olken and Barron (2009) provided evidence based on direct observation; Ferraz and Finan (2011), Brollo and Troiano (2013) and Brollo et al. (2013) used data from random audits of governmental processes and public entities in Brazil. While many of these studies have proposed more accurate and reliable methods of measuring corruption, their implementability remains limited because they are generally very costly and difficult to replicate across countries. For this reason, perception-based indices remain the main source of information for policymakers and stakeholders. In this paper we look at a channel as yet unexplored that may make these measures misleading and thus shed light on a source of volatility in perceptions that tends to disproportionately amplify differences across little and very corrupt countries or areas, i.e. media content. Indeed media content simultaneously expresses common beliefs about corruption and is a source of information on which these beliefs are based, and, for this reason it tends to polarize differences in perception across countries.

[3]For example, according to a survey published by the World Bank and the Government Inspectorate of Vietnam (Anderson et al., 2010), in 2010 29 per cent of Vietnamese patients of public hospitals gave their doctors an envelope with money to speed up and secure their service and of these over 75 per cent did it voluntarily without being asked to by the doctor. Scholars argue that this attitude is rooted in the Confucian gift-giving tradition for which gifts stem from gratitude. Also, a recent paper by Lee and Guven (2013) shows that more masculine societies have lower probabilities of viewing bribery as being seriously wrong and that an individual's attitude towards risk taking is among the main determinants of justification of bribes.

Media persuasion. Perceptions, or *beliefs*, about the extent of corruption are likely to affect numerous individual actions: citizens' voting choices, entrepreneurs' investment decisions, and governments' funding allocations. In the absence of being able to directly observe how much corruption there is, individuals are bound to learn about these practices from the signals they receive from more informed parties, primarily the media. A recent strand of literature has indeed focused on the persuasive power of the media on individual beliefs and behaviors (Della Vigna and Gentzkow, 2010).

The most abundant literature has looked at the effects of media content on voting behaviors (Della Vigna and Kaplan, 2007; Enikolopov et al., 2011; Barone et al., 2015; Della Vigna et al., 2014). Closely related to these papers is the work by Mastrorocco and Minale (2015), who show that reducing exposure to crime-related news decreases elderly individuals' concerns about crime. The authors argue that this change in crime perceptions is likely to have important implications for voting behavior.

But the literature on the persuasive power of the media is not limited to its effects on voting. Media content has also been shown to have an effect on violent behavior (Dahl and Della Vigna, 2009), family decisions and fertility choices (Chong and La Ferrara, 2009; Chong et al., 2012; Bassi and Rasul, 2015) and attitudes towards gambling (De Paola and Scoppa, 2014).

Our paper will investigate the impact of newspaper reports on corruption on beliefs about corruption in Italy. In addition to being an as yet unexplored channel of persuasion by the media, it is likely to have a significant impact on voting behavior, on choosing between public and private services or jobs, and on investment decisions, and can thus help us understand individual choices made in many different fields.

3 Data and descriptive evidence

We combine information on corruption perceptions and media coverage of news about corruption using two original sources of data. Corruption perceptions are collected by looking at specific questions contained in the 2014 wave of the *Italian Survey of Household Income and Wealth* (SHIW), while we built a *Corruption News Dataset* (CND) to gather information on news items about corruption reported on the front pages of a representative sample of online newspapers on the same days that the SHIW interviews were conducted.

3.1 Data

Measures of corruption perceptions. The 2014 wave of the SHIW included a representative sample of about 1,800 households.[4] The survey was conducted by professional interviewers between January and March 2014. The questionnaire contained a theme-based section with a set of questions aimed at describing the respondents' perceptions of corruption. These questions were answered only by heads of households and thus refer to their own perceptions and not those of the other members of their households.

Specifically, respondents were presented with situations in which a hypothetical citizen is faced with a request for a bribe or similar dishonest behavior on the part of a public officer, and were asked to assign to each of these events a subjective probability of occurrence between 0 (not at all likely) and 100 (certain to happen). The questionnaires asked respondents to describe how likely they think that the following events would occur: (*i*) a public officer hints that he would accept a sum of money, a favor or a gift in exchange for providing the service; (*ii*) the citizen has to ask for the intervention of a friend or acquaintance who works in the government office in order to speed up the provision of a service; (*iii*) a corrupt public officer who has been discovered, ends up in prison. From these questions we retrieve subjective probabilities about *respondents' perceptions* with regard to three main domains, respectively: (*i*) formal corruption ('Corruption'), (*ii*) resorting to the use of private networks as a bad social norm related to corruption ('Social Norms'), (*iii*) the effectiveness of the judicial system to combatting corruption ('Justice Effectiveness').[5]

The questions focused on cases of 'petty' corruption, i.e. situations which are somehow likely to occur to citizens in everyday life and not only to businessmen and firms interacting with public officers (in contrast with 'grand' corruption, which occurs, for instance, in public tenders).[6]

Table 1 provides an overview of the corruption perceptions obtained from the survey. The descriptive pattern that emerges reassures us that the survey questions are able to capture individual expectations about corruption events. Indeed, we observe that respondents assign higher probability to corruption events that constitute less serious offenses (i.e. on average we observe that corruption is expected to occur in 36.5 per cent of the cases, while the use of connections is expected almost 50 per cent of the times). In analysing the heterogeneity of the responses based on observable characteristics we find that lower educated individuals tend to

[4] See Appendix A for details.

[5] Henceforth, we will simply use the term 'corruption perceptions' to refer to the three variables. The complete translation of the SHIW Survey Questionnaire is included in Appendix A.

[6] These definitions are borrowed from Transparency International, http://www.transparency.org/what-is-corruption/.

attach a higher probability to the occurrence of corruption events; similarly, individuals who are either not employed (inactive or unemployed) or self-employed tend to report higher perceptions of corruption than persons who are employed. Direct contact with public officers increases the perceived likelihood of corruption since those individuals who report visiting government offices more frequently also have a higher perception of corruption.

To assess how good the survey questions are overall at eliciting corruption perceptions, we compare their answers with those of similar questions posed in the Eurobarometer Corruption Report for the year 2014 (European Commission, 2014). For instance, the Eurobarometer reports that 42 percent of Italian respondents agree that 'corruption can potentially affect his/her daily life', this figure is close to the mean of the *Corruption* perception variable obtained from the SHIW (36.5 per cent).[7] With respect to the effectiveness of law enforcement, according to the Eurobarometer report, only 27 per cent of Italian respondents (in line with the EU average) agree that 'there are enough successful prosecutions to deter people from corrupt practices'. Again, this figure is not far from the SHIW figure measuring the perception of Justice Effectiveness (15.8 per cent).

Measures of media coverage of corruption. We collected daily information on all news items related to corruption that appeared on the front page of 30 on-line newspapers ($j = 1 \dots 30$) for the weeks in which the SHIW interviews were conducted (i.e. between January and March 2014). We henceforth, refer to our collection as the *Corruption News Database*, CND.[8] We selected the widely most read national newspapers (N) (including three sports newspapers) and the local newspapers with the greatest circulation (L). For each newspaper front page, we recorded the number and the type of news items containing (either in the title or in the text of the article) any of a family of keywords referring to corruption.[9]

We thus construct a measure of the potential exposure to corruption news (i.e. $News_{dp}$, eq. 1), given by the sum of two components. The first component accounts for exposure to daily news at the national level: it is given by the sum of corruption news items that appeared on day d in all national newspapers and it is therefore the same for all individuals interviewed on the same day d. The second component captures the geographical variation in exposure and is given by the sum of the corruption news items that appeared on day d in all the local newspapers

[7] According to Eurobarometer, the EU average perception is far lower, about 26 per cent, with Italy ranking just behind Spain and Greece (62 per cent), and Cyprus and Romania (57 per cent).

[8] See Appendix A for the complete list of newspapers monitored and for details on the creation of the database. Our data collection methodology is similar to that of Di Tella and Franceschelli (2011). They kept track, on a daily basis, of articles about corruption that appeared on the front page of the four most widely read national newspapers in Argentina. The aim of their paper was to study the relationship between corruption news reporting and government funding of the newspapers through advertising.

[9] See Appendix A for the list of keywords searched.

circulating in province p where the respondent i resides.[10] The latter component accounts for the fact that local news items usually resonate only with respondents residing in a given area, and are not normally reported in the national press.

$$News_{dp} = \sum_{j \in N} news_{dj} + \sum_{j \in L} news_{dL}|_{d_{ip}(j \in L)>0} \tag{1}$$

3.2 Descriptive statistics

Our final sample consists of 1,805 (heads of) households surveyed over 64 days between 11 January and 22 March , 2014. On average, we recorded about 12 corruption news items per day, with a peak of 39 corruption news items on one day, and a low of just one corruption news item (Table 2). The average interviewee is about 60 years-old, with half of the sample being female. Only 12 per cent of the interviewees hold a college degree and almost 56 per cent declare that they visit a government office five times per year at most, while only 7 per cent declare that they never visit a government office.

Figure 1 shows the daily variation of exposure to corruption news ($News_{dp}$, eq. 1). The vertical lines indicate the major corruption events that occurred during the survey sample period. Figure 2, displays the geographical variability across provinces[11] and shows that there were provinces that were incidentally more exposed than others to media coverage about corruption news during the survey period.

Figure 3 overlays the timeline of the corruption news measure and the timeline of the *Corruption* perception measure, showing our main source of identification. At first glance, we see that the two variables seem to move very closely in tandem; the vertical lines denote the most relevant corruption news published during the period of the interviews and correspond with peaks in perceptions of corruption (similar results hold for the other outcome variables).

4 Identification

The aim of our empirical analysis is to identify the effect that exposure to corruption news has on respondents' corruption perceptions. To this purpose, we focus on the following baseline specification:

$$Y_{iped} = \alpha_0 + \beta News_{dp} + \alpha_1 X_i + \alpha_2 Int_i + \varphi_e + \varphi_t + \varphi_p + \epsilon_{iped} \tag{2}$$

[10] The circulation of local newspaper j in province p ($d_{ip}(j \in L)$) must be greater than zero. Local newspaper circulation is taken from the official data of *Accertamenti Diffusione Stampa srl* for the year 2013. See Appendix A for details.

[11] In Italy there are 110 provinces corresponding to the NUTS 3 classification level.

where Y_{iped} expresses the perceptions about *Corruption*, *Social Norms*, or *Justice Effectiveness* reported by individual i, residing in province p and being interviewed by enumerator e on day d. $News_{dp}$ is the measure of exposure to corruption news, as obtained from eq. 1, and varies at the day and province level. X_i is a set of individual socio-demographic characteristics, such as educational level, occupational status and frequency of contact with public officers; Int_i is a set of interview-specific characteristics, including its duration and whether it was carried out in the morning;[12] φ_t represents day of the week fixed effects, φ_p province fixed effects and φ_e enumerator fixed effects.

Our research design exploits the quasi-experimental variation in the level of individual potential exposure to corruption news caused by the the random scheduling of the SHIW interviews. Interview dates are random in that there are no individual characteristics that determine at what point during the survey period a person is interviewed (Doerrenberg and Siegloch, 2014; Bassi and Rasul, 2015). Thus, we assume that random scheduling results in zero correlation between (observable and unobservable) individual characteristics and the number of corruption news items reported by the media on the day of the interview. Under this assumption, we exploit, as a main source of identification, the variation in the respondents' potential exposure to corruption news by date of interview and by province of residence.

In order to ascribe a causal interpretation to β, we must also rule out the possibility that variables omitted from our baseline specification have an effect in shaping respondents' corruption perceptions. Therefore, the inclusion of time and province fixed effects (φ_t and φ_p) is potentially important, since they allow us to control for any unobserved factor that is time or province specific.[13] Moreover, the characteristics of the interview (Int_i) take into account observable differences in how the interviews were conducted. We control for the overall duration of the interview, for whether the interview started in the morning and for a linear time trend starting from the first day of the scheduled interviews. We also include fixed effects for the enumerators who conducted the phone interviews so as to control for any unobserved attitude of the compiler, which is constant across all the individuals surveyed.[14]

Our main identification assumption, i.e. the random scheduling of the interview dates with respect to observable and unobservable individual characteristics, can be at least partially tested. Table 3 shows the results from OLS regressions that verify whether the observable individual

[12]The complete list of the control variables can be found in Table 2

[13]E.g. day of the week and province fixed effects control for lower media attention on Mondays since much of the media coverage is devoted to sports and football and for a higher level of corruption perception due to the fact that a larger share of public employees work in the province where the regional governing body is located. In the robustness section we will also show that we can flexibly control for additional unobserved heterogeneity, both at the time and at the territory by time level (i.e. what we exploit for the identification), with more computationally demanding specifications without affecting our baseline estimates (see Section 6).

[14]Additional specification tests are performed in the robustness section 6.

characteristics X_i are uncorrelated with the number of news items that appeared on newspaper front pages on the day of the interview, $News_{dp}$. These regressions, which include fixed effects (φ_t, φ_p, φ_e) and the set of control variables Int_i, do not reveal any statistically significant correlation.

A key piece of information that we do not observe is what newspapers the respondents actually read. Indeed, as shown in Appendix Figure A.1, different newspapers systematically over or under report news of corruption. Yet, as long as there is still variability over time within newspapers on the number of corruption related news items reported, and assuming that individual preferences for newspapers are sufficiently stable over time, randomly scheduling the interviews also makes it possible to overcome this concern.

Finally, because we do not observe the exact level of each respondent's exposure to media since we do not know whether respondents actually read any on-line newspapers on the day of the interview, we will refer to a *potential* exposure and we will interpret parameter β as an *Intention To Treat* effect (ITT).

5 Results

We run OLS regressions following our baseline specification (eq. 2) with robust standard errors clustered at the level of the day of the interview (Della Vigna and Kaplan, 2007) and report our baseline results in Table 4. Columns (1), (4) and (7) show the raw correlation between the news measure and, respectively, the *Corruption*, *Social Norms* and *Justice Effectiveness* perceptions, while in columns (2), (5) and (8) we add the individual characteristics (X_i), and in columns (3), (6) and (9) we include the province and the day of the week (*dow*) fixed effects (φ_t and φ_p) and the interview controls (Int_i and φ_e).

Focusing our comments on the full specification in columns (3), (6) and (9), we observe that media coverage of corruption news has a positive and statistically significant effect on *Corruption* perceptions, and a negative and statistically significant effect on *Justice Effectiveness* perceptions. The size of the effect is also non-negligible: increasing media coverage by one additional corruption news item determines an increase in the perceived likelihood of a citizen being asked a bribe by a public officer (i.e. *Corruption* variable, column (3)) by 0.17 percentage points (about 0.5 per cent) and decreases the perceived likelihood that a corrupt public officer would be sentenced to prison (i.e. variable *Justice Effectiveness* variable, column (9)) by 0.11 percentage points (about 0.7 per cent). To generalize, increasing corruption news items by one standard deviation (i.e. 7.49 news) causes a 1.27 percentage points (3.5 per cent) increase in *Corruption* perceptions and a 0.82 percentage points (5.2 per cent) decrease in *Justice*

Effectiveness perceptions.

Perceptions of social norms, as opposed to corruption or justice effectiveness, are not influenced by media coverage of corruption news items: the results for *Social Norms* show the same positive sign as *Corruption* perceptions, but are never statistically significant. This could be either because they are not perceived to be related to corruption related news, or because social norms are widely accepted and well established in the individual's mind and thus not susceptible to influence by the media in the short run.

With respect to individual characteristics, in focusing on column (3) we observe that corruption perceptions are negatively correlated with age, educational level (i.e. holding a high school diploma) and public sector employment, while gender, employment status and frequency of contact with public officers do not seem to have any significant direct influence. This piece of evidence also makes a relevant contribution to the existing literature, as very few papers have managed to provide an analysis of the determinants of the perceptions of corruption based on individual micro data, especially for developed countries (Mocan, 2008; Lee and Guven, 2013).

The use of the online versions of newspapers is an important innovation in the media and persuasion literature. While it is true that media might also report on corruption through other means, such as TV, radio or the print version of newspapers, it is also true that the type of news reported should be correlated. Therefore we do not expect our estimates to be biased because of the limited set of information sources that we consider, but rather our estimated effects will implicitly include the effects of TV or print journalism coverage of corruption related news (Eisensee and Strömberg, 2007).

6 Sensitivity and robustness checks

In this section we perform a vast array of sensitivity and robustness checks to corroborate our results and to show that the specification chosen is appropriate for handling potential threats to identification.

Measures of exposure to corruption related news. In columns (1) to (4) of Table 5 we show the results of a set of specification tests that make use of several variants of our main variable of interest (i.e. $News_{dp}$). In Figure A.1 in the Appendix, we see that the total number of corruption news items appearing in two newspapers (i.e. *Il Fatto Quotidiano* and *La Stampa*) is considerably larger than the average. In the specification of column (1) of Table 5, we therefore treat these two newspapers as outliers and exclude them from the computation of the $News_{dp}$ variable. The results do not change significantly from the baseline (i.e. Table 4, columns (3), (6) and (9)). We then compute a three day moving average of $News_{dp}$ (column (2))

and a cumulative version of $News_{dp}$ (column (3)), which is the sum of corruption news items that appeared on the day of and in the two days prior to the interview for each respondent.[15] We use these two measures to take into account that the respondents' exposure might also be influenced by all the news heard in the days leading up to the interview. The results do not change significantly from the baseline, although the magnitude of the coefficients shrinks when considering the cumulative news measure. This seems to point to the fact that only the news reported on the same day as the interview matters in influencing perceptions. We will come back to this point of the persistence of the effects further on.

The $News_{dp}$ variable does not attach a different weight to the news based on the observable characteristics of the newspaper. However, it could be reasonable to assume that news items that appeared in the most widely read newspapers produce a greater echo than newspapers with smaller circulations, and thus have greater power to influence the respondents' perceptions. For this reason we compute a weighted version of the $News_{dp}$ variable, which simply sums each news item as weighted by the newspaper's relative circulation (d_j).[16] The results in column (4) imply that a one standard deviation increase in the weighted news measure causes a 0.94 percentage points increase in *Corruption* perceptions and an approximately 0.94 percentage points decrease in *Justice Effectiveness* perceptions.

Timing of the interview. We then perform additional sensitivity checks to rule out the possibility that respondents interviewed over the weekend (Saturday and Sunday) may be systematically different from the rest of the sample and be exposed to a different type of media coverage than during week days (for instance, because of sporting events, which usually take up a lot of newspaper front page space on the weekends). The inclusion in the main specification of the day-of-the week fixed effects is intended to account for these systematic differences. In Table 5 we go a step further and estimate the baseline model by excluding all respondents who were interviewed on week-end days (about 8 per cent of the total sample, column (5)) and by linking the news exposure of the previous day to all respondents who completed the interview before 11 PM ($News_{(d-1)p}$, column (6)).[17] The results obtained are still in line with the baseline

[15] Formally, the three days moving average of $News_{dp}$ is given by $News_{dp}^{MA} = \sum_{d=-1}^{1} News_{dp}$, while the cumulative version is equal to $News_{dp}^{CUM} = \sum_{d=0}^{-2} News_{dp}$, where $d = 0$ is the day of the interview.

[16] A newspaper's total circulation is measured by the copies sold, the free copies distributed and subscriptions (data published for the year 2013 by *Accertamenti Diffusione Stampa srl*). The relative circulation of each newspaper j is given by the ratio between its own circulation and the total circulation of the 30 newspapers in the sample. Notice that in this case we simply sum the weighted news measure across all national and local newspapers. Attempts to use alternative indicators to compute the weights (such as the number of paper copies sold and the number of digital copies sold) or using different weights for the local news component do not generate different results.

[17] This latter test is also important because, according to the survey protocol of the CND (see Appendix A), we performed our Boolean search on the online newspapers every day starting from 2 PM. Note, however, that the variable *Morning* in the baseline specification implicitly takes this into account.

specification.

Unobserved heterogeneity. A major threat to our identification strategy is that unobserved factors at the province by day level (other than the exposure to corruption news) might affect respondents' perceptions. The limited number of respondents in the SHIW sample makes it computationally impossible to include province-by-day fixed effects in our specification as these cells do not contain enough observations to perform the estimates. To flexibly control for unobserved heterogeneity at the territory-by-time level, we include province-by-week fixed effects: the results are shown in column (8) of Table 5 (while column (7) shows the estimates with inclusion of the week fixed effects only). Given the plausible assumption that any large scale local event (for example, a demonstration against the Mafia in province p in day d) that could have an effect on individuals' perceptions (in this example, reasonably those related to *Justice Effectiveness*) is also likely to have some short run effect that could plausibly extend beyond the precise day of the week on which the interview occurs, performing this robustness check should reassure us that our results are not driven by relevant unobserved factors at this level.

Endogeneity of $News_{dp}$. Exposure to certain types of news may be endogenous if editor and reader preferences are correlated so that readers choose which newspaper to read depending on its coverage of a certain topic, such as corruption (Eisensee and Strömberg, 2007). Yet, in our case, even if there was this assortative mating between readers and newspapers, the number of corruption-related news items to which a reader is exposed would remain exogenous. This happens because, in order to identify the causal effect, we use the daily variation in the number of news items reported, so that as long as editor and reader preferences remain sufficiently constant over time, the number of news to which a reader is exposed each day is exogenous. Over the survey period none of the newspapers in the sample changed editor or owner and the data on newspaper sales and on website visits show very little daily variation. Nevertheless, we run a test to rule out that some sorting of readers across newspapers is driving our results. We thus follow Olken (2009) and Leon et al. (2013) and run our main regressions including a variable that serves as a proxy for an individual's preferences and, in particular, for his propensity to care about corruption issues. The variable we employ is a question from the SHIW that asks respondents how serious they think the problem of tax evasion is. The results in column (9) of Table 5 show that the estimated coefficients for the β remain unaffected.

Persistence of the effects. We test whether media exposure has a persistent effect on corruption perceptions. In particular, we estimate a variation of equation 2, in which we focus on the effects of corruption news that appeared in the newspapers t days after the interview,

controlling for the number of news items that appeared on the day (d) of the interview:

$$Y_{idpe} = \alpha_0 + \beta News_{dp} + \beta_{lag} News_{(d-t)p} + \alpha_1 X_i + \alpha_2 Int_i + \varphi_t + \varphi_p + \varphi_e + \epsilon_{idpe} \quad (3)$$

This specification makes it possible to obtain estimates for the contemporaneous potential exposure to corruption news (β) and for the effects of the lagged potential exposure (β_{lag}), allowing us to analyze whether a memory process exists (i.e. there is persistence in the effects) and whether lagged exposure has a significant impact on current perceptions (Dahl and Della Vigna, 2009). We plot the estimated coefficients ($\widehat{\beta}$, i.e. the contemporaneous exposure and $\widehat{\beta}_{lag}$, i.e. the lagged exposure) and the corresponding 90 per cent confidence intervals in Figure 4, considering a time span of up to 30 days for the lag $News_{(d-t)p}$. The estimate of the contemporaneous exposure on $day = 0$ corresponds to the baseline estimate of Table 4 column (3).

Both the contemporaneous and the lagged exposure show large confidence intervals and are not statistically significant up to day eight. This is plausibly due to a high autocorrelation component that does not allow us to disentangle the two separate effects in the very short run. If we consider longer time lags (between 10 and 30 days), the estimates for the lagged variable are never statistically significant, while those for contemporaneous exposure are generally positive and significant at the 90 per cent confidence level. The timing of the effects shows that there is no persistence in the effects of news exposure on corruption perceptions, since only the contemporaneous exposure has a significant impact. Again, the results for the *Justice Effectiveness* and *Social Norms* variables, albeit confirming the general findings, are less precisely estimated.[18]

Placebo regressions. As a final robustness check, we perform a placebo exercise. Specifically, we randomly assign the respondents to the dates of the interviews, and re-estimate our baseline OLS specification. We repeat the random draw and the subsequent estimation for up to 1,000 replications, as in a Monte Carlo simulation process, and then average the estimated coefficients and standard errors over the number of replications. The results are depicted in Figure 5. We do not find any statistically significant effect, and as the number of replications increases, the estimated average coefficients converge to zero, providing reassurance that the effects we estimate in our baseline analysis are convincingly capturing the causal effect of media exposure on corruption perceptions.

[18] These results are not reported but are available from the authors upon request.

7 Potential mechanisms

In this section, we try to shed light on the mechanisms underlying the effects detected above. We believe that there are two important potential channels that may explain the influence of news coverage on corruption perceptions: on the one hand it may be that readers acquire new information from the media about a phenomenon that they do not observe directly, in which case the news on corruption would trigger a *learning* mechanism; on the other hand, to the extent that the news items reported by the media do not contain additional informational in that they do not reveal any new corruption facts to their readers, the effect of these news items on respondents' preferences should instead be interpreted as *bias*.

Facts vs. claims. In the attempt to disentangle these two mechanisms and understand which of the two is driving our results, we split our news into two categories: on the one hand 'facts', i.e. corruption news reporting on convictions, arrests or investigations; and on the other hand 'claims', i.e. corruption news items that are not linked to any specific fact. Indeed, the news items related to corruption that we collected were not always mere accounts of some corruption investigation, arrest or conviction, but were sometimes reports of some statement by politicians, international organizations or other public figure about the extent of corruption and the importance of fighting it. Clearly both types of news are likely to affect individual perceptions of the phenomenon, but we will argue that the first type of news, the facts, is a signal to readers, allowing them to revise their beliefs through a learning process. Claims, instead, tend to persuade readers without adding any new piece of information about the phenomenon, thus biasing beliefs. In other words, the two types of news represent two types of signals: good signals, which convey information, and bad signals, which instead decrease the accuracy of individuals' beliefs.

Figures 6 and 7 show the front pages of two major national newspapers reporting respectively a corruption 'fact' and a 'claim'. In the first case, the news refers to the start of a trial for alleged corruption against former Prime Minister Silvio Berlusconi, who was accused of having paid money to witnesses in another trial against him. This occurrence of corruption was unknown to readers before the news was reported in the newspaper and thus we classify this as a fact that reveals new information about the actual extent of corruption. The second news item, instead, is about the issue of a report by the European Commission about the extent of corruption across member states. The figures given in the report were based on past facts, and thus did not add any new information on the extent of corrupt practices. Moreover, the estimates of the European Commission were revealed to be erroneous a few days later (Polo, 2014), so that we can confidently classify this as a bad signal.

As a first attempt to understand whether the estimated effects prevalently originate from a learning process or just reflect biased reporting, we thus run our baseline regressions excluding the days in which the main facts and claims occur. In Figure 1 we show that two main corruption claims occur in the survey period: the issuing of the EU Report on Corruption in the EU Member States (letter c in the figure) and the declarations against corruption upon settlement of the new Prime Minister Matteo Renzi (letter e in the figure). During the survey period there were also two days when the news on the EU Report overlapped with other news about a corruption scandal involving bribes in the Italian National Space Agency (letter d in the figure). These two days thus represent a combination of the two types of mechanisms and will be excluded from the analysis. Columns (1), (4) and (7) in Table 6 report the estimates of our baseline specification excluding these two days (with a peak of facts and claims), while in columns (2), (5) and (8) we exclude the days in which only claim news appeared on the newspapers (for a total of five days), and in columns (3), (6) and (9) we exclude a corresponding number of days in which we recorded the main occurrences of fact news.

Excluding the respondents interviewed on the five days when only claims appeared in the newspapers, we do not find any statistically significant effect of corruption news on *Corruption* perceptions (column (2)). Conversely, if we exclude the five days when the main facts items were reported (column (3)), we still find a positive and statistically significant effect, which almost doubles in magnitude as compared to the baseline in column (1). We interpret this piece of evidence as suggesting that, in our sample, *Corruption* perceptions are mainly affected by claims. The results in Table 6 are instead inconclusive for the *Justice Effectiveness* and *Social Norms* perceptions, as all the specifications show a negative, but not statistically significant, correlation.

Using convictions as a proxy for facts. As a second step in digging into the mechanisms that underlie the estimated effects, we used data from the Directorate for Statistics of the Ministry of Justice that report the number of individuals convicted for corruption-related crimes in every court district and on every day during the survey period.[19] The data on convictions can be used as a proxy for the occurrence of corruption facts in a certain area and on a given day.

Figure 8 compares the daily variation in the total number of individuals convicted with the most reverberating news related to corruption (either facts or claims). Two main aspects are worth noting: first, claim news (i.e. the vertical lines denoted by letters c and e) never coincides with peaks in the convictions measure (this is also true for the mixed event indicated by letter d);

[19] For details on data on convictions see Appendix A.

conversely, in most of the cases (letters *b*, *f*, *g*) fact news coincides with peaks in the convictions measure. This is not the case where the corruption events covered by the media are related to arrests or investigations (as compared with convictions, letter *a*).[20]

In Table 7 we first analyze whether the number of individuals convicted for corruption-related crimes on each day in each court district ($Convictions_{dc}$) has any effect on respondents' perceptions. As for the variable $News_{dp}$ in the main analysis, the conviction data on are linked to each respondent based on the day of the interview d and on the court district c in which the respondent resides.[21] The results in column (1) show that corruption convictions have no effect on any dimension of the respondents' perceptions. Given that news on convicted individuals might take some time to appear on the newspapers' home-pages, in columns (2) to (4) we perform several robustness checks using alternative specifications for the $Convictions_{dc}$ variable, which, however, do not alter the results.

Finally, in columns (5) and (6) we augment the specification that include the $News_{dp}$ variable. Under the assumption that the number of individuals convicted of corruption-related crimes is a good proxy for the real level of corruption, the effect of potential exposure to corruption news is also given net of the actual level of corruption reported for each area and day for this specification. It turns out that the effect of potential exposure to corruption news is not influenced by the number of convictions: estimates for perceptions on *Justice Effectiveness* are even more precise once we account for the time variant part of the actual level of corruption in the area.

In turn, the results presented in Tables 6 and 7 suggest that the effects of exposure to corruption news are mainly driven by news items reporting claims rather than facts. Indeed, we find that perceptions are not influenced by corruption facts, as proxied by the number of convictions that occurred on the days near the interview.

Heterogeneous effects. As a final piece of evidence concerning the underlying mechanisms, we investigate how the effects of exposure to corruption news vary depending on certain individual characteristics that may serve as proxy for the individual's level of knowledge of the phenomenon. In Table 8 we split the sample by civil servant status (whether or not the individual works in a government office), self-employment status (whether or not the individual is self-employed), and frequency of visitation of government offices (whether or not the individual is a frequent visitor) and run separate regressions on each subsample.

[20] Unfortunately, because of privacy restrictions on the convictions database, we are not able to link convictions to the corresponding news items (if any). Figure 8 shows that some of the convictions were also reported in the news, but only if involving some public figure or politician. In general, the media tends to under report convictions.

[21] Robustness checks using alternative measures, such as the total number of persons convicted on each day, do not change the results (available from the authors upon request).

We find that respondents who are potentially *less informed* about corruption and/or *less exposed* to its risk (i.e. private sector workers, employees, people who do not frequently visit government offices) are those who react most strongly to corruption news exposure. Conversely, respondents who are potentially *more informed* and/or *more exposed* (i.e. frequent visitors of government offices, civil servants, self-employed) do not appear to be influenced by the content of the news. Again the estimates are less precise for Justice Effectiveness and there is no statistically significant effect on the ones for *Social Norms*.

Finally, we investigate the impact of previously accumulated knowledge of the phenomenon and news by performing the same heterogeneity analysis, excluding the days when the major facts or major claims occurred, along the lines of the analysis performed for Table 6. Focusing on *Corruption* perceptions, the results reported in Table 9 are more precisely estimated when the days with the major facts are excluded and the effects remain concentrated among less informed/exposed individuals. There are no statistically significant effects on any group when the days with the major claims are excluded.

We believe that these findings contain two main messages. First, respondents who are potentially less informed about corruption practices and less exposed to corruption in their work experience are those who react more strongly to exposure to corruption news. Moreover, they appear to be mostly affected by claims about corruption rather than facts, thus suggesting that the persuasive mechanism is stronger when individuals' beliefs are less accurate. Secondly, from a policy perspective, our results suggest that the opinions of stakeholders or informed individuals should be preferred, as compared to non-qualified citizens, to build corruption indicators based on perceptions, as these individuals are considerably less affected by media content.

8 Concluding remarks

The question of how widespread corruption is and what areas or countries are the most affected by it is an open and compelling one. Most measures used to compare and rank countries are based on surveys that collect individuals' subjective perceptions about the extent of the phenomenon. Yet these measures are likely to contain errors due to imperfect information or bias in perceptions that may alter individual responses. These errors may be more severe among certain types of respondents or in certain areas or countries where individual perceptions happen to be more malleable and volatile. This paper attempts to shed light on the sensitivity of individual perceptions of corruption to media content. For this reason, this paper stands in relation to the most recent literature on media persuasion, examining a novel means by which media can influence individual behaviors.

We use two original data sources that respectively contain information about the number of news items related to corruption that appeared in the major Italian online newspapers over the period January-March 2014 and about the level of corruption perceived by around 1,800 individuals interviewed during the same period. Incorporating these corruption perception questions into an extensive, established household survey allows us to link perceptions to a large set of individual characteristics. Our strategy in identifying a causal parameter (an intention-to-treat effect) for exposure to corruption-related news on the respondents' corruption perceptions exploits the random scheduling of the interviews, controlling for the characteristics of the respondent and of the interview, as well as unobserved time and territorial heterogeneity.

We find that media content affects the perceptions of individuals, especially regarding those phenomena that they are least likely to have experienced directly. In particular, we find that increasing individual exposure to corruption news on the day of the interview by one standard deviation determines an increase in the stated likelihood of being asked for a bribe by a public official of about 3.5 per cent over the mean and a decrease in the perceived level of effectiveness of justice of about 5.2 per cent. The effects are robust to alternative specifications and robustness checks, but generally are more precisely estimated for corruption perceptions. The perceptions on social norms instead are not affected; this may be because they relate to individual beliefs that do not vary in the short run or because they are not perceived as corrupt behaviors and, therefore, as related to the news. We also try to disentangle which type of economic mechanism underlies our results. Despite being far from conclusive, our evidence suggests that individuals are more affected by claims of public figures and institutions than by the mere reporting of corruption facts. We interpret this to suggest that the prevailing mechanism is more one of *bias* than of *learning*. However, more accurate data are still needed to provide a final answer to this question.

From a policy perspective, our work has important implications since it highlights certain pitfalls in using existing measures of corruption that are based on citizens' perceptions. Since these indices have been shown to have a significant influence on the decisions of economic agents, shaping, for example, both domestic and foreign investments, our results are relevant at a macro level, suggesting that cross-country comparisons based on perception indices are to be interpreted (and built) with caution. Moreover, there should be greater emphasis on the disclosure of these measures. Indeed, we show that advertising the results of surveys based on individual perceptions produces a kind of 'snowball effect' in that this news amplifies the pre-existing differences in perceptions.

In conclusion, while it is certainly true that existing cross-national indices reflect a certain

level of corruption present in each country, it is less obvious that they are able to express the exact level of corruption in a country, and as a consequence, the exact cross-country ranking. We provide evidence that media content biases individuals' perceptions of corruption and that this effect can be heterogeneous across different types of respondents, with those who are plausibly less informed about corruption and less exposed to its risks being more likely to be influenced by media content. This factor should be taken into account when designing surveys, and further research should be carried out in order to develop better measures.

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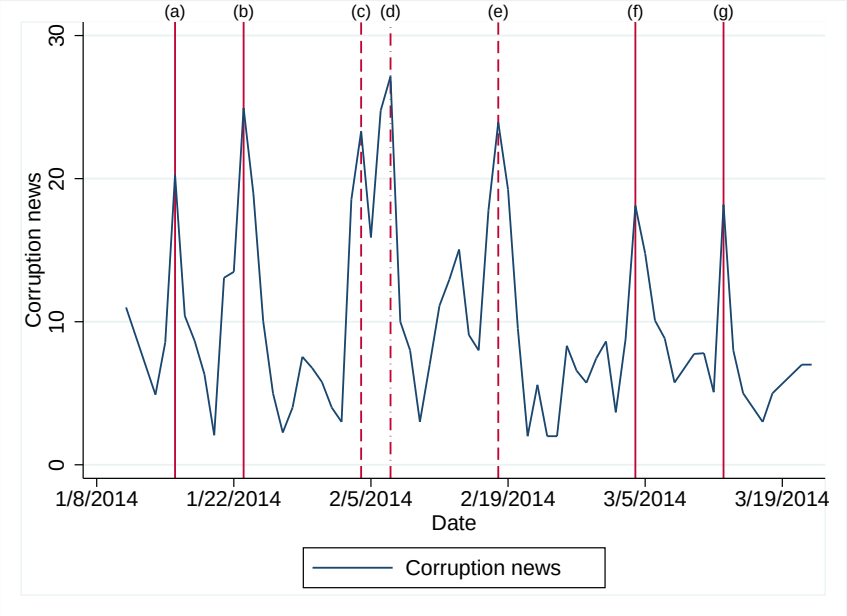
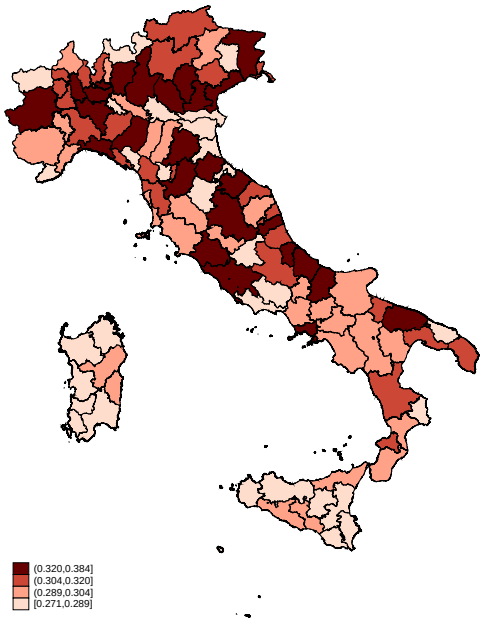
Figures

Figure 1
Corruption news exposure



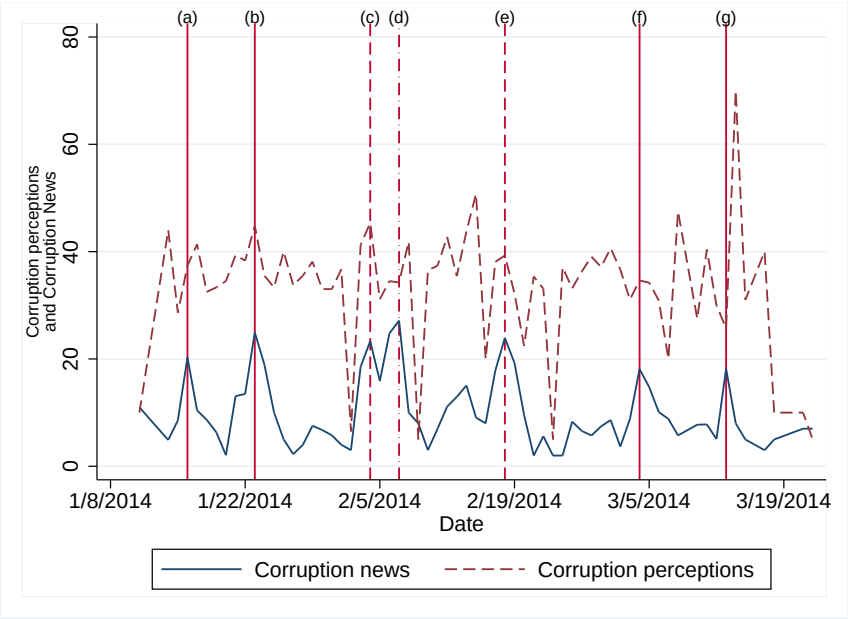
Notes: the timeline shows the average media exposure (as obtained from eq. 1) by date. The vertical lines denote the occurrence of the major corruption events, solid lines denote the main corruption facts, dashed lines denote the main corruption *claims*; the dash-dot line denotes a date on which two main claims and facts overlap. The lines denote, in chronological order: (a) embezzlement cases involving the Piedmont governing body; (b) the so-called 'Rubi ter trial' in which Silvio Berlusconi (Italy's former prime minister) was accused of corruption; (c) the issuing of the EU Anti-Corruption Report; (d) a case of bribery in the Italian Space Agency and news on the EU Anti-Corruption Report; (e) the appointment of a new prime minister (Matteo Renzi) with statements about the fight against corruption; (f) the so-called "'Maugeri trial' in which members of the Lombardy governing body were formally accused of corruption and embezzlement; (g) the case of corruption discovered in the Lombardy public health system. **Source**: the authors' calculations based on data from the Corruption News Database (CND).

Figure 2
Corruption news exposure: geographical variation



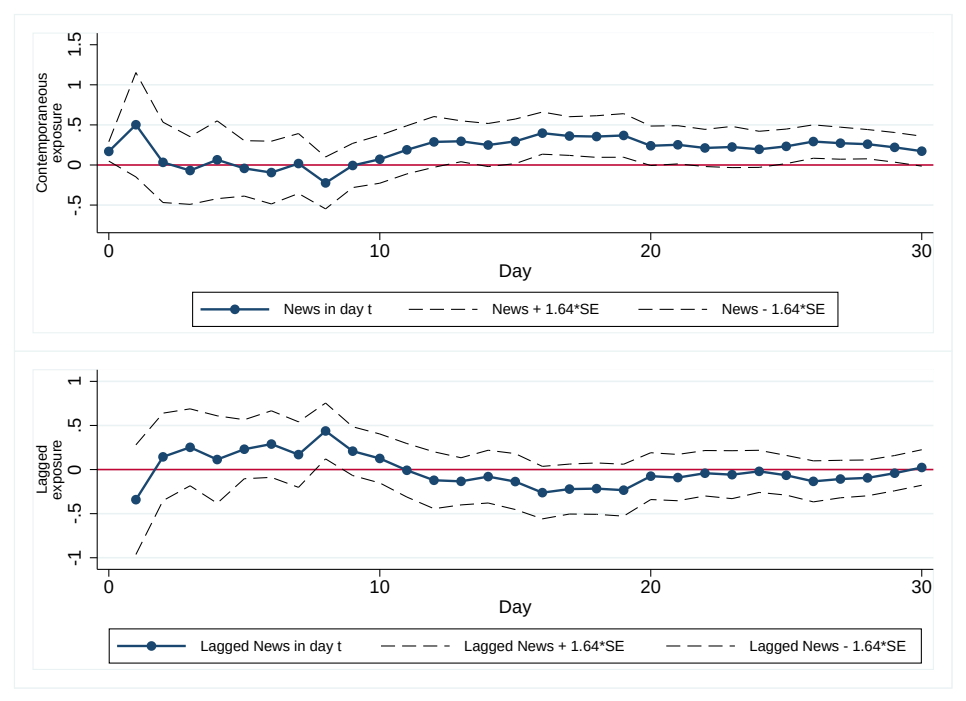
Notes: tthe map shows the average of the measure of media exposure by province as expressed by eq. 1. The darker the area, the more corruption news items reported in local newspapers. **Source**: the authors' calculations based on data from the Corruption News Database (CND).

Figure 3
Corruption news exposure and corruption perceptions: the overlap of the daily timeline



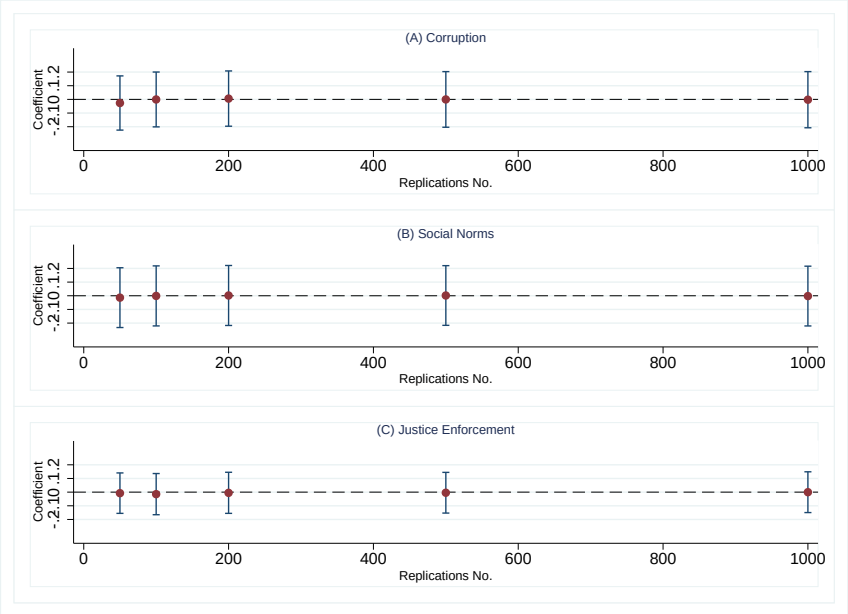
Notes: the timeline shows the average media exposure (as obtained from eq. 1) and *Corruption* perceptions by date. The vertical lines denote the occurrence of events listed in Figure 1. **Source**: the authors' calculations based on data from the Italian Survey of Household Income and Wealth (2014) and the Corruption News Database (CND).

Figure 4
Timing of the effect: corruption



Notes: the graph shows the coefficients (dots) and the confidence intervals at the 90 per cent level (dashed lines) of the effects of contemporaneous (upper panel) and lagged (bottom panel) exposure to news. The results are obtained from the regression specification that includes the same control variables and fixed effects as in the baseline specification of Table 4, columns (3), (6) and (9). The contemporaneous effect on $day = 0$ corresponds to the baseline estimate of Table 4 column (3). **Source**: the authors' calculations based on data from the Directorate for Statistics of the Italian Ministry of Justice.

Figure 5
Robustness: placebo Monte Carlo simulations

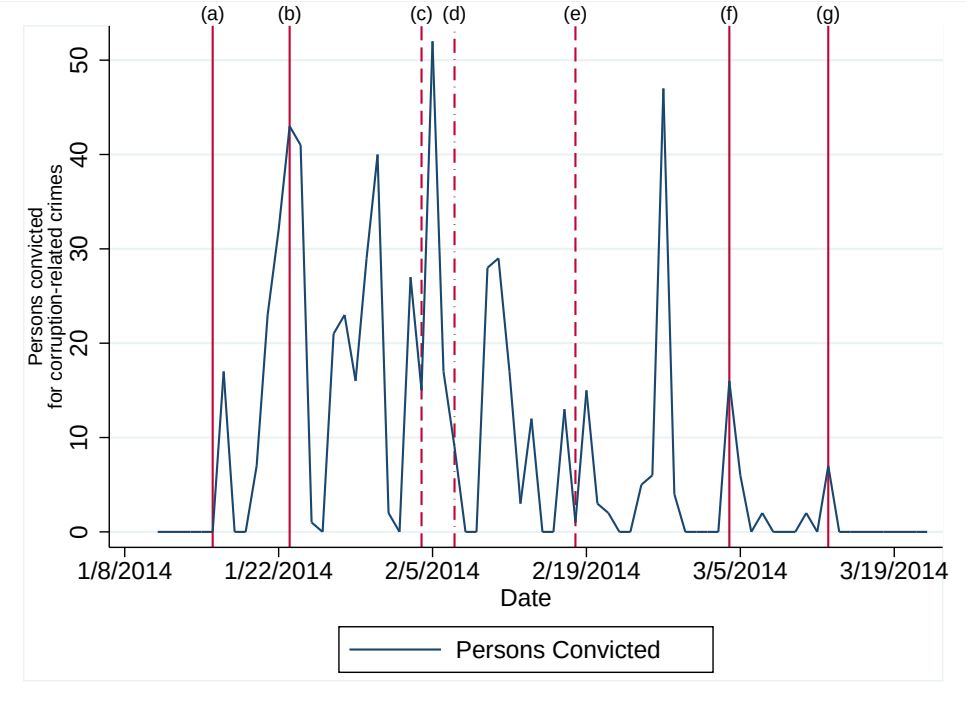


Notes: the figures in Panel (A), (B) and (C) show, respectively, the results of the placebo Monte Carlo simulation for the *Corruption*, *Social Norms* and *Justice Effectiveness* variables. The dots correspond to the average coefficient estimates for the parameter β from eq. 2 computed over a given number of replications indicated on the horizontal axes; the vertical lines denote the average confidence intervals at the 95 per cent level computed over the corresponding number of replications. **Source**: the authors' calculations based on data from the Italian Survey of Household Income and Wealth (2014) and the Corruption News Database (CND).

Figure 6
Example of a major corruption 'fact'

Figure 7
Example of a major corruption 'claim'

Figure 8
Persons convicted for corruption-related crimes by date



Notes: the timeline shows the total number of persons convicted for corruption-related crimes by date. The vertical lines denote the occurrence of events listed in Figure 1. **Source**: the authors' calculations based on data from the Directorate for Statistics of the Ministry of Justice.

Tables

Table 1
Descriptive statistics: corruption perceptions from the SHIW data

	N	Corruption	Social Norms	Justice Effectiveness
Occupation status				
Employee	532	33.77 (28.22)	47.47 (31.1)	16.31 (21.65)
Self-employed	136	37.07 (27.66)	50.05 (29.22)	12.28 (18.77)
Unemployed or out of the labour force	1137	37.65 (28.97)	49.63 (31.11)	15.99 (20.75)
Education level				
Higher education	841	33.9 (27.47)	48.91 (30.67)	15.35 (20.69)
Lower education	964	38.7 (29.55)	49.13 (31.25)	16.2 (21.07)
Contacts with Public Officers				
Lower than the median	965	34.13 (27.5)	46.54 (30.35)	14.83 (20.13)
Higher than the median	840	39.14 (29.8)	51.88 (31.45)	16.91 (21.69)
Total	1805	36.46 (28.69)	49.03 (30.97)	15.8 (20.89)

Notes: the figures report the mean coefficients and the standard deviations (in parentheses) of the answers to the SHIW Survey Questions designed to elicit individuals' corruption perceptions (see Appendix A). We define individuals according to the following characteristics: *Employees* include those with either a tenure or a fixed term contract, *Unemployed or out of the labour force*; individuals are classified as having a *higher education* they hold at least a high school diploma; individuals with *Contacts with Public Officers* below the median are those who declare that they have had five or fewer contacts per year. **Source**: Italian Survey of Household Income and Wealth (2014).

Table 2
Descriptive statistics: dependent and control variables

Variable name	Mean	Sd	Max	Min	N
Dependent variables					
Corruption	36.46	28.69	100	0	1805
Social Norms	49.03	30.97	100	0	1805
Justice Effectiveness	15.8	20.89	100	0	1805
Independent variables					
News	12.1	7.49	30	1	889
Female	0.5	0.5	1	0	1805
Age	60.25	15.38	95	18	1805
Junior School	0.53	0.5	1	0	1805
High School	0.35	0.48	1	0	1805
College	0.12	0.32	1	0	1805
Employee	0.29	0.46	1	0	1805
Self employed	0.08	0.26	1	0	1805
Unemployed or out of the labour force	0.63	0.48	1	0	1805
Civil servant	0.1	0.3	1	0	1805
POF: never	0.07	0.25	1	0	1805
POF: at most 5 times py	0.56	0.5	1	0	1805
POF: at most 10 times py	0.21	0.41	1	0	1805
POF: more than 10 times py	0.16	0.37	1	0	1805
Morning	0.33	0.47	1	0	1805
Duration	39.47	14.39	159	15	1805
Persons convicted for corruption-related crimes	0.27	0.65	4	0	611

Notes: *Corruption*, *Social Norms* and *Justice Effectiveness* are the dependent variables expressing individual perceptions (in terms of subjective probabilities) as defined based on the SHIW (see Appendix A for details on their formulation); *News* indicates corruption news exposure (per day, per province) as obtained from eq. 1; *Female* is a dummy variable equal to 1 if the individual is female; *Age* is a variable indicating the individual's age in years; *Junior School*, *High School*, *College* are dummy variables equal to 1 if the maximum level of education completed by the individual is, respectively, a Junior School Diploma, the High School Diploma, the College Degree or any higher educational qualification; *Employee* is a dummy variable equal to 1 if the individual holds a permanent or a fixed-term position as an employee; *Self-employed* is a dummy variable equal to 1 if the individual is self-employed; *Unemployed or out of the labour force* is a dummy variable equal to 1 if the individual is either retired or in search of a job; *Civil servant* is a dummy variable equal to 1 if the individual is employed in the public sector; the frequency of the individual's contacts with the public officers (POF) is indicated by dummy variables for the categories: *POF: never*, *POF: at most 5 times per year* (py), *POF: at most 10 times per year* (py), *POF: more than 10 times per year* (py); *Morning* is a dummy variable equal to 1 if the interview was started in the morning; *Duration* indicates the duration of the interview (in minutes); *Persons convicted for corruption-related crimes* is the number of persons convicted for corruption related crimes on the day of the interview (by court district) **Source**: Italian Survey of Household Income and Wealth (SHIW), Corruption News Database (CND) and Ministry of Justice.

Table 3
Correlation between $News_{d,p}$ and the main individual observable characteristics

	Dep. Variable: News		
Female	-0.00	0.15	-0.03
	(0.33)	(0.29)	(0.30)
Age	0.01	-0.00	-0.02
	(0.02)	(0.01)	(0.01)
High School	0.72*	0.32	0.40
	(0.41)	(0.38)	(0.38)
College	0.54	0.58	0.66
	(0.53)	(0.54)	(0.58)
Employee	0.03	0.50	0.17
	(0.57)	(0.45)	(0.42)
Self employed	-0.41	0.05	-0.07
	(0.86)	(0.39)	(0.41)
Civil Servant	-0.86	-0.88	-0.56
	(0.62)	(0.58)	(0.66)
POF: at most 5 times py	-0.07	-0.59	-0.18
	(0.69)	(0.59)	(0.53)
POF: at most 10 times py	-0.16	-0.58	-0.05
	(0.80)	(0.62)	(0.63)
POF: more than 10 times py	-0.35	-0.32	0.02
	(0.66)	(0.69)	(0.66)
Morning			-0.26
			(0.29)
Duration			-0.02
			(0.01)
Constant	11.92***	13.74***	13.30***
	(1.81)	(2.63)	(4.72)
Adj.R2	0.00	0.22	0.29
No.Clusters	64	64	64
No.Observations	1805	1805	1805
Individual characteristics	✓	✓	✓
Fixed effects: province, dow		✓	✓
Interview controls			✓

Notes: robust standard errors in parentheses clustered for the day of the interview. For the definition of the control variables see Table 2; the categorical dummies omitted in the regressions are *Junior School*, *Unemployed or out of the labour force*, *POF: never*; the acronym *dow* indicates the day of the week fixed effects; the set of interview controls includes the variables *Morning* and *Duration*, a linear time trend starting from the first day of the interviews, and the enumerators fixed effects. Significance level: *** p<0.01, ** p<0.05, * p<0.1 **Source**: Italian Survey of Household Income and Wealth (2014) and Corruption News Database (CND).

Table 4
Baseline results: the effect of corruption news exposure on corruption perceptions

	Corruption			*Social Norms*			*Justice Effectiveness*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
News	0.26**	0.28**	0.17**	0.21	0.21	0.06	-0.07	-0.06	-0.11**
	(0.10)	(0.11)	(0.07)	(0.15)	(0.16)	(0.11)	(0.08)	(0.07)	(0.06)
Female		2.20	2.27		-0.05	0.36		1.40	0.97
		(1.56)	(1.42)		(1.58)	(1.42)		(1.11)	(1.21)
Age		-0.17**	-0.12**		-0.18***	-0.19***		-0.04	-0.04
		(0.07)	(0.06)		(0.06)	(0.06)		(0.04)	(0.04)
High School		-5.16***	-3.82**		-0.61	-1.29		-1.13	0.32
		(1.69)	(1.69)		(1.93)	(1.86)		(0.99)	(1.08)
College		-5.67***	-3.59		-0.84	-0.11		-2.33	-0.08
		(2.02)	(2.21)		(2.74)	(2.84)		(1.44)	(1.69)
Employee		-4.34*	-2.80		-4.39*	-2.25		-0.71	-1.02
		(2.19)	(2.18)		(2.29)	(2.12)		(1.63)	(1.56)
Self employed		-1.55	-1.42		-3.02	-1.70		-4.28**	-1.78
		(2.57)	(2.33)		(2.74)	(2.59)		(1.83)	(1.67)
Civil Servant		-1.25	-4.84**		-3.01	-5.34*		2.65	2.40
		(2.20)	(2.37)		(2.82)	(2.73)		(1.87)	(1.93)
POF: at most 5 times py		-1.08	0.33		1.58	3.62		4.32***	2.77
		(3.00)	(2.76)		(3.79)	(3.44)		(1.59)	(1.73)
POF: at most 10 times py		2.91	3.14		5.16	4.61		4.99**	1.30
		(3.20)	(3.32)		(4.03)	(4.15)		(1.94)	(1.82)
POF: more than 10 times py		6.84**	3.37		9.20**	6.54		8.62***	3.31
		(3.03)	(3.02)		(3.99)	(4.08)		(2.05)	(2.00)
Constant	33.17***	45.28***	38.70**	46.43***	56.13***	81.80***	16.69***	14.44***	-16.31*
	(1.17)	(6.31)	(16.44)	(1.87)	(6.67)	(22.79)	(1.13)	(3.47)	(8.89)
Adj.R2	0.00	0.03	0.28	0.00	0.02	0.30	0.00	0.01	0.26
N.Clusters	64	64	64	64	64	64	64	64	64
N.Observations	1805	1805	1805	1805	1805	1805	1805	1805	1805
Individual characteristics		✓	✓		✓	✓		✓	✓
Fixed effects: province, dow			✓			✓			✓
Interview controls			✓			✓			✓

Notes: robust standard errors in parentheses clustered for the day of the interview. For the definition of the control variables see Table 2; the categorical dummies omitted in the regressions are *Junior School*, *Unemployed or out of the labour force*, *POF: never*; the acronym *dow* indicates day of the week fixed effects; the set of interview controls includes the variables *Morning* and *Duration*, a linear time trend starting from the first day of the interviews, and the enumerators fixed effects. Significance level: *** p<0.01, ** p<0.05, * p<0.1 **Source**: Italian Survey of Household Income and Wealth (SHIW, 2014) and Corruption News Database (CND).

Table 5
Sensitivity and robustness checks

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A					*Corruption*				
Corruption news	0.18**	0.15**	0.06**	2.95*	0.15**	0.17**	0.19***	0.22**	0.16**
	(0.08)	(0.07)	(0.02)	(1.63)	(0.07)	(0.07)	(0.07)	(0.11)	(0.07)
Individual attitude towards tax evasion									-3.09***
									(1.11)
Constant	38.56**	55.53**	55.21**	39.29**	11.14	39.03**	768.10***	534.15	49.02***
	(16.43)	(23.50)	(23.54)	(16.41)	(12.94)	(16.40)	(287.07)	(1015.70)	(16.92)
Adj.R2	0.28	0.28	0.28	0.28	0.27	0.28	0.28	0.31	0.28
Panel B					*Social Norms*				
Corruption news	0.05	0.05	0.02	0.93	0.04	0.06	0.08	0.19	0.05
	(0.11)	(0.11)	(0.04)	(2.25)	(0.11)	(0.11)	(0.10)	(0.15)	(0.10)
Individual attitude towards tax evasion									-2.43*
									(1.25)
Constant	81.98***	40.55	40.50	82.08***	49.07**	81.93***	297.65	-854.77	89.91***
	(22.75)	(24.63)	(24.68)	(22.74)	(22.71)	(22.77)	(508.24)	(1437.50)	(22.88)
Adj.R2	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.33	0.30
Panel C					*Justice Effectiveness*				
Corruption news	-0.11*	-0.11**	-0.03*	-2.65**	-0.13**	-0.11*	-0.08	-0.10*	-0.11*
	(0.06)	(0.05)	(0.02)	(1.14)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Individual attitude towards tax evasion									1.26
									(0.80)
Constant	-16.29*	33.22*	33.29*	-16.33*	-2.14	-16.56*	309.22	402.00	-20.52**
	(8.95)	(18.53)	(18.57)	(8.81)	(5.55)	(8.83)	(192.05)	(465.03)	(9.20)
Adj.R2	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.29	0.26
N.Clusters	64	62	63	64	46	64	64	64	64
N.Observations	1805	1803	1803	1805	1653	1805	1805	1805	1805
Excluding outliers	✓								
Three days moving average of $News_{dp}$		✓							
Cumulative version of $News_{dp}$			✓						
Weighted version of $News_{dp}$				✓					
Excluding interviews on Saturday and Sunday					✓				
Morning interviews linked to $News_{(d-1)p}$						✓			
Adding week fixed effects							✓		
Adding week by province fixed effects								✓	
Control for individual attitude towards tax evasion									✓

Notes: robust standard errors in parentheses clustered for the day of the interview. All the specifications include the control variables and fixed effects as in the baseline specification for Table 4, columns (3), (6) and (9); for the definition of the control variables see Table 2. The specification in column (1) excludes the two newspapers with the highest numbers of corruption news items (i.e. the outliers *Il Fatto Quotidiano* and *La Stampa*); the specification in column (2) replaces the variable $News_{dp}$ with its moving average over three days (centered on the day of the interview); the specification in column (3) replaces the variable $News_{dp}$ with its cumulative sum starting from the day of the interview and including the two days prior; the specification in column (4) replaces the variable $News_{dp}$ with a weighted version using weights equal to each newspaper's total circulation share (total circulation includes copies sold, free copies and subscriptions based on data published for the year 2013 by *Accertamenti Diffusione Stampa srl*; the specification in column (5) excludes interviews conducted on Saturday and Sunday; the specification in column (6) replaces the variable $News_{dp}$ with $News_{(d-1)p}$ for interviews started in the morning and concluded before 11 PM; the specification in column (7) adds week fixed effects; the specification in column (8) adds week-by-province fixed effects; the specification in column (9) adds a control variable capturing the individual's general attitude towards tax evasion. Significance level: *** p<0.01, ** p<0.05, * p<0.1 **Source**: Italian Survey of Household Income and Wealth (SHIW, 2014) and Corruption News Database (CND).

Table 6
Potential mechanisms: 'facts' versus 'claims'

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Corruption			*Social Norms*			*Justice Effectiveness*		
Corruption news	0.17*	0.09	0.30***	0.08	0.08	-0.02	-0.09	-0.06	-0.03
	(0.09)	(0.13)	(0.08)	(0.11)	(0.16)	(0.12)	(0.06)	(0.09)	(0.08)
Constant	76.77***	57.76***	23.57	80.64***	119.89***	27.43	-1.85	-6.97	16.67
	(17.36)	(16.49)	(29.32)	(14.95)	(21.93)	(21.99)	(7.76)	(9.05)	(17.83)
Adj.R2	0.29	0.30	0.31	0.31	0.32	0.31	0.27	0.28	0.29
No.Clusters	62	57	57	62	57	57	62	57	57
No.Observations	1704	1437	1456	1704	1437	1456	1704	1437	1456
Baseline excluding 2 days with both facts and claims	✓			✓			✓		
Excluding 5 days with only claims		✓			✓			✓	
Excluding 5 days with major facts			✓			✓			✓

Notes: robust standard errors in parentheses clustered for the day of the interview. All the specifications include the control variables and fixed effects used in the baseline specification for Table 4, columns (3), (6) and (9); for the definition of the control variables see Table 2. The specifications in columns (1), (4) and (7) repeat the baseline estimates excluding two days in which both corruption facts and claims were recorded; the specifications in columns (2), (5) and (8) exclude the five days with the highest occurrences of corruption claims; the specifications in columns (3), (6) and (9) exclude the five days with the highest occurrences of corruption facts. Significance level: *** p<0.01, ** p<0.05, * p<0.1 **Source**: Italian Survey of Household Income and Wealth (SHIW, 2014) and Corruption News Database (CND).

Table 7
Convictions as a proxy for corruption events

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A			*Corruption*			
Convictions	-0.27	-0.06	-1.49	-0.25	-0.24	-0.22
	(0.89)	(0.52)	(1.65)	(0.88)	(0.88)	(0.87)
Corruption news					0.17**	0.17**
					(0.07)	(0.07)
Constant	40.82**	40.89**	750.78***	40.85**	38.59**	38.61**
	(16.09)	(16.09)	(275.98)	(16.08)	(16.42)	(16.42)
Adj.R2	0.28	0.28	0.28	0.28	0.28	0.28
Panel B			*Social Norms*			
Convictions	1.18	0.49	0.19	1.12	1.19	1.13
	(0.87)	(0.48)	(1.95)	(0.89)	(0.88)	(0.89)
Corruption news					0.06	0.06
					(0.11)	(0.11)
Constant	83.19***	83.14***	286.07	83.10***	82.36***	82.27***
	(22.69)	(22.80)	(507.27)	(22.69)	(22.81)	(22.81)
Adj.R2	0.30	0.30	0.30	0.30	0.30	0.30
Panel C			*Justice Effectiveness*			
Convictions	-0.96	-0.30	-0.17	-1.01	-0.98	-1.04
	(0.68)	(0.41)	(1.33)	(0.69)	(0.68)	(0.69)
Corruption news					-0.12**	-0.12**
					(0.06)	(0.06)
Constant	-18.30**	-18.16**	321.14*	-18.28**	-16.77*	-16.74*
	(8.41)	(8.44)	(192.05)	(8.41)	(8.85)	(8.84)
Adj.R2	0.26	0.26	0.26	0.26	0.26	0.26
No.Clusters	64	64	64	64	64	64
No.Observations	1805	1805	1805	1805	1805	1805
$Convictions_{dc}$	✓				✓	
Cumulative version of $Convictions_{dc}$		✓				
Three days moving average of $Convictions_{dc}$			✓			
Correction for interviews on Saturday or Sunday				✓		✓

Notes: robust standard errors in parentheses clustered for the day of the interview. All the specifications include the control variables and fixed effects used in the baseline specification for Table 4, columns (3), (6) and (9); for the definition of the control variables see Table 2. The variable $Convictions_{dc}$ indicates the number of individuals convicted because of corruption-related crimes in day d and court district c. the specifications in columns (1) and (5) use the baseline $Convictions_{dc}$; the specifications in columns (2) and (3) use variants of the $Convictions_{dc}$ corresponding to the ones defined for the variable $News_{dp}$ in Table 5; the specifications in columns (4) and (6) link interviews on Saturdays and Sundays to data on convictions from the preceding Friday. Significance level: *** p<0.01, ** p<0.05, * p<0.1 **Source**: Italian Survey of Household Income and Wealth (SHIW, 2014) and Corruption News Database (CND).

Table 8
Heterogeneity across individual characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
	Civil Servant		Self-Employed		Frequent Govt User	
	Yes	No	Yes	No	Yes	No
Panel A			*Corruption*			
Corruption news	-0.43	0.19**	0.95	0.13*	-0.02	0.23**
	(0.49)	(0.08)	(0.80)	(0.08)	(0.16)	(0.10)
Constant	57.45	38.07	122.83**	57.78**	61.40**	80.98**
	(55.70)	(26.59)	(59.90)	(22.74)	(26.93)	(35.93)
Adj.R2	0.27	0.29	0.21	0.28	0.30	0.29
No.Clusters	47	61	39	64	57	60
No.Observations	185	1620	136	1669	665	1140
Panel B			*Social Norms*			
Corruption news	0.35	0.77	0.77	0.05	-0.21	0.12
	(0.69)	(1.06)	(1.06)	(0.11)	(0.19)	(0.11)
Constant	-4.82	184.62**	184.62**	42.79*	103.31***	111.49***
	(76.86)	(70.03)	(70.03)	(24.66)	(34.27)	(33.28)
Adj.R2	0.12	0.27	0.27	0.30	0.37	0.27
No.Clusters	47	39	39	64	57	60
No.Observations	185	136	136	1669	665	1140
Panel C			*Justice Effectiveness*			
Corruption news	-0.61	-0.04	0.20	-0.12**	-0.14	-0.04
	(0.72)	(0.06)	(0.88)	(0.06)	(0.12)	(0.07)
Constant	69.39	-24.08**	7.55	31.35*	55.95**	-2.60
	(48.60)	(9.75)	(44.43)	(18.57)	(22.45)	(38.24)
Adj.R2	0.21	0.28	0.09	0.27	0.30	0.29
No.Clusters	47	61	39	64	57	60
No.Observations	185	1620	136	1669	665	1140

Notes: robust standard errors in parentheses clustered for the day of the interview. All the specifications include the control variables and fixed effects used in the baseline specification for Table 4, columns (3), (6) and (9); for the definition of the control variables see Table 2. The *Frequent Govt User* is defined according to whether the individual declares that he/she visits general government offices more than five times per year (i.e the third and fourth category the POF variable as defined in Table 2). The control variable corresponding to the variable used for the sample split is excluded from the regression. Significance level: *** p¡0.01, ** p¡0.05, * p¡0.1 Source: Italian Survey of Household Income and Wealth (SHIW, 2014) and Corruption News Database (CND).

Table 9
Heterogeneity across individual characteristics: facts and claims

	(1)	(2)	(3)	(4)	(5)	(6)
	Corruption					
	Civil Servant		Self-Employed		Frequent PA User	
	Yes	No	Yes	No	Yes	No
Panel A: excluding main facts						
Corruption news	0.23	0.31***	0.80	0.27***	0.11	0.31**
	(0.99)	(0.09)	(1.18)	(0.10)	(0.17)	(0.14)
Constant	-3.82	9.58	9.10	28.27	36.86***	41.22***
	(83.99)	(36.83)	(100.22)	(28.85)	(12.18)	(9.56)
Adj.R2	0.22	0.33	0.26	0.32	0.35	0.32
No.Clusters	40	54	34	57	50	53
No.Observations	155	1301	119	1337	537	919
Panel B: excluding main claims						
Corruption news	0.56	-0.01	1.34	0.01	-0.27	0.02
	(1.34)	(0.12)	(1.46)	(0.12)	(0.29)	(0.18)
Constant	115.39	-4.93	118.53	29.14	65.67***	67.53***
	(87.09)	(26.66)	(144.54)	(21.56)	(15.83)	(10.91)
Adj.R2	0.05	0.33	0.49	0.32	0.38	0.29
No.Clusters	40	54	34	57	50	53
No.Observations	155	1301	119	1337	537	919

Notes: robust standard errors in parentheses clustered for the day of the interview. All the specifications include the control variables and fixed effects as in the baseline specification of Table 4, columns (3), (6) and (9); for the definition of the control variables see Table 2. The *Frequent Govt User* is defined according to whether the individual declares that he/she visits a government office more than five times per year (i.e the third and fourth category the POF variable as defined in Table 2). The main facts and main claims days that are excluded in Panels A and B, respectively, refer to the definitions provided in Table 6. The control variable corresponding to the variable used for the sample split is excluded from the regression. Significance level: *** p<0.01, ** p<0.05, * p<0.1 **Source**: Italian Survey of Household Income and Wealth (SHIW, 2014) and Corruption News Database (CND).

A Appendix: Data

In this Appendix we provide detailed information on the characteristics of the databases used for this paper: the SHIW, the Corruption News Database (CND) and the data on convictions provided by the Ministry of Justice.

A.1 The 2014 Intermediate Wave of the Italian Survey of Household Income and Wealth (SHIW)

The SHIW is designed by the Bank of Italy and is carried out by an independent, external firm. Since 2010 it has served as the Italian database for the European Union Household Finance and Consumption Survey (HFCS) coordinated by the European Central Bank and is conducted every two years on a representative sample of households. The survey thus contains standardized sections harmonized at the European Union level from which we can obtain certain socio-economic data on households. In the gap year between the full surveys, the Bank of Italy conducts an 'intermediate wave', which includes about one fourth of the sample of the main wave and all the core questions, as well as a section on special topics that change from year to year.

The 2014 intermediate wave included a special section on corruption. Each head of household was asked three sets of questions on corruption. The first set covered perceptions of corruptions and bad social norms that are conducive to corruption. The wording was the following: 'Imagine that a citizen contacts a government office in relation to some service. Without referring to your personal experience, indicate the probability (on a scale of 0 to 100) that each event will occur. The lower the value, the lower the probability and the higher the value, the higher the probability':

- the public officer hints that he would accept a sum of money, a favor or a gift in exchange for providing the service (*Corruption*);
- the citizen has to ask for the assistance of a friend or acquaintance who works in the government office in order to expedite the receipt of the service (*Social Norms*).

In the second set of questions, respondents were asked their perceptions about the likelihood that a corrupt public officer would be discovered and subsequently sanctioned, thereby examining their perceptions of the effectiveness of measures taken to combat corruption. Again, the respondents were asked to assign a value of between 0 and 100 to indicate the probability of each event, where low (high) values correspond to low (high) probability. More specifically,

we asked: 'Indicate the probability (on a scale of 0 to 100) that each event will occur. The lower the value, the lower the probability and the higher the value, the higher the probability.'

- a corrupt public officer is discovered (*Effectiveness of Investigations*);
- a corrupt public officer who has been discovered, eventually serves a prison term (*Effectiveness of Justice*).

A.2 The Corruption News Database

On each of the 82 days between 19 January and 30 March 2014 we kept track of the number of news items appearing by searching the homepages of the 30 online newspapers reported in Figure A.1 and Table A.1. These included 15 national newspapers, 12 local newspapers and the three main sports newspapers, as defined by the data published for the year 2013 by *Accertamenti Diffusione Stampa Srl*, a firm that tracks periodical circulation figures.[22] Our protocol required that we start our search at 2 PM and conclude it by 4 PM. To do this we performed a Boolean search of each newspaper's homepage using a family of words in Italian that derive from the words 'corruption' (i.e. corruption, corrupted, to corrupt), 'bribe' (i.e. bribe, to bribe) and synonymous journalistic jargon like 'embezzlement' and 'misappropriation'.[23]

Figure A.1 shows the total number of corruption news items recorded in the 82-day timeframe, with the newspapers *Il Fatto Quotidiano* and *La Stampa* appearing as two outliers. Table A.1 provides general descriptive statistics. Overall, we collected 945 corruption news items over the 82 days, an average of 11.5 corruption news items per day. Of the total, 67 per cent of the items appeared in national newspapers, about 32 per cent in local newspapers, and a negligible share in the sports newspapers. We applied these descriptive statistics to the total number of days tracked because we were informed that the SHIW interviews were scheduled for this time period. The main analysis was then conducted using 64 days out of the 82 on which the interviews were actually conducted, however it was necessary to track all 82 days in order to compute additional news measures, such as the three- or five-day moving averages, the leads and the lags.

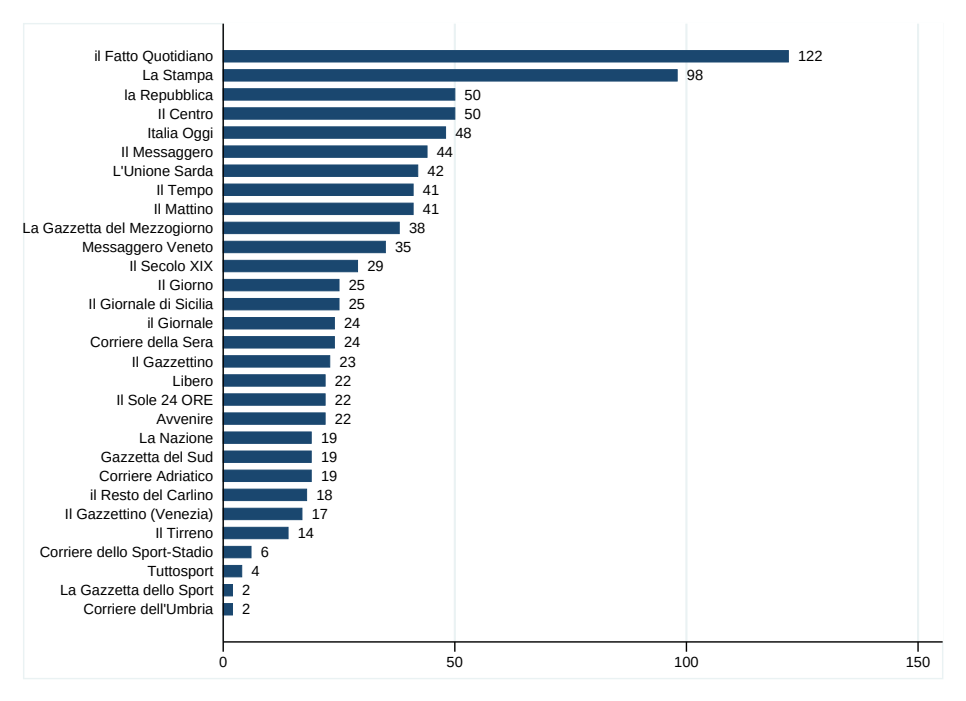
A.3 Data on convictions

Data on persons convicted of corruption-related crimes are indicated by day and by court district and include the total number of persons convicted for crimes against the public administration (Articles 314−335 of the Italian Penal Code). This encompasses is a wide range of

[22] http://www.adsnotizie.it.

[23] The six key words in Italian were: *corruzione*, *concussione*, *tangente*, *mazzetta*, *appropriazione indebita*, *peculato*, and words derived from these (e.g. adjectives).

Figure A.1
Corruption news by newspaper



Notes: the bar chart shows the total number of corruption news items recorded in each on-line newspaper homepage over the observational period. **Source**: the authors' calculations based on data from the Corruption News Database (CND).

corruption-related offenses, such as corruption proper, falsification of public documents, bribery, and embezzlement. These same offenses correspond to the keywords used for the Boolean search performed to construct the Corruption News Database.

Data on convictions are collected by the Ministry of Justice at the court district level. In Italy, there are 29 court districts (listed in Figure A.2). This figure falls between the numbers of Italian regions (20) and provinces (110) (data do not exist for lower levels of territorial aggregation).[24]

[24]The database was kindly made available by the Directorate for Statistics of the Ministry of Justice and is up-to-date as of July 2014.

Table A.1
Descriptive statistics for the corruption news items by newspaper

Newspaper		*Corruption news items per day*					
Type	Name	Total No.	Mean	sd	Max	Min	N
Panel A: by newspaper							
N	Avvenire	22	0.27	0.47	2	0	82
L	Corriere Adriatico	19	0.23	0.45	2	0	82
N	Corriere della Sera	24	0.29	0.53	2	0	82
S	Corriere dello Sport-Stadio	6	0.07	0.26	1	0	82
L	Corriere dell'Umbria	2	0.02	0.16	1	0	82
L	Gazzetta del Sud	19	0.23	0.45	2	0	82
L	Il Centro	50	0.61	0.73	2	0	82
N	il Fatto Quotidiano	122	1.49	1.4	7	0	82
L	Il Gazzettino	23	0.28	0.5	2	0	82
L	Il Gazzettino (Venezia)	17	0.21	0.46	2	0	82
N	il Giornale	24	0.29	0.56	2	0	82
L	Il Giornale di Sicilia	25	0.3	0.51	2	0	82
N	Il Giorno	25	0.3	0.51	2	0	82
N	Il Mattino	41	0.5	0.77	4	0	82
N	Il Messaggero	44	0.54	0.63	2	0	82
L	il Resto del Carlino	18	0.22	0.47	2	0	82
N	Il Secolo XIX	29	0.35	0.57	2	0	82
N	Il Sole 24 ORE	22	0.27	0.55	3	0	82
N	Il Tempo	41	0.5	0.71	3	0	82
L	Il Tirreno	14	0.17	0.41	2	0	82
N	Italia Oggi	48	0.59	0.86	4	0	82
L	La Gazzetta del Mezzogiorno	38	0.46	0.69	3	0	82
S	La Gazzetta dello Sport	2	0.02	0.16	1	0	82
N	La Nazione	19	0.23	0.45	2	0	82
N	la Repubblica	50	0.61	0.86	3	0	82
N	La Stampa	98	1.2	1.26	5	0	82
N	Libero	22	0.27	0.55	2	0	82
L	L'Unione Sarda	42	0.51	0.71	2	0	82
L	Messaggero Veneto	35	0.43	0.65	3	0	82
S	Tuttosport	4	0.05	0.22	1	0	82
Panel B: by newspaper type							
N	National	631	7.7	5.27	22	0	82
L	Local	302	3.68	2.85	12	0	82
S	Sport	12	0.15	0.45	2	0	82
Total	All Newspapers	945	11.52	7.47	30	1	82

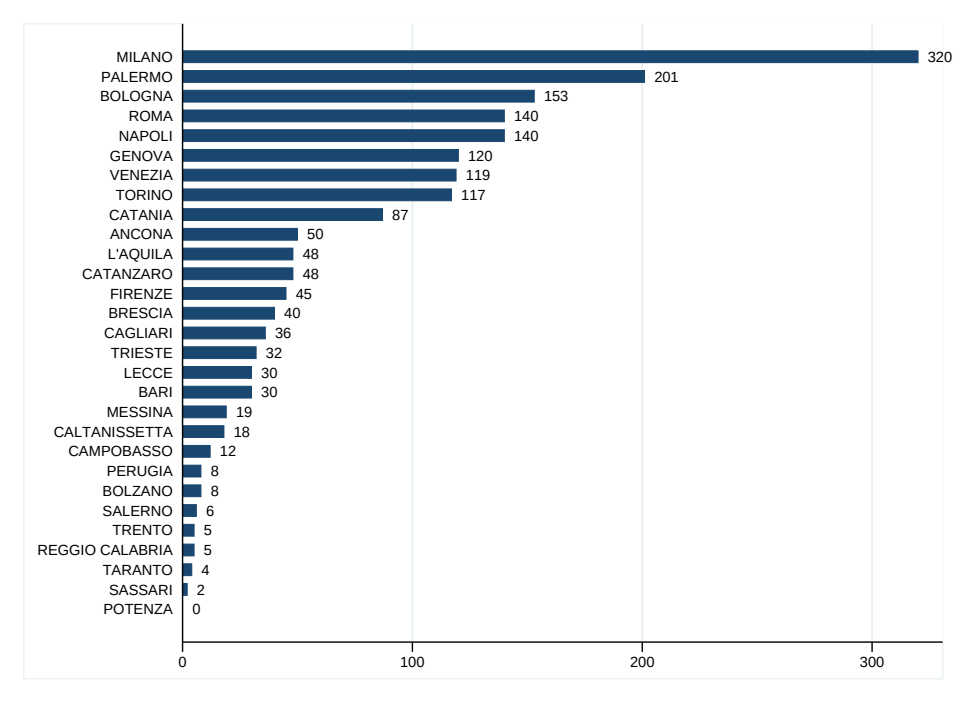
Notes: the table shows descriptive statistics for the corruption news items registered in the 82 days between 9 January and 30 March 2014. Panel A reports the figures by newspaper, Panel B by the type of newspaper: National (N), Local (L), Sports (S). The sports newspapers have a national circulation. **Source**: Corruption News Database (CND).

Table A.2
Main corruption events: description and type

Corruption news items	*Event description*	*Event type*	*Date*
30	Bribery case in the Italian National Space Agency and EU Commission Report on corruption (follow-up)	FC	07/02/2014
29	'Ruby ter trial': Silvio Berlusconi (Italy's former Prime Minister) accused of corruption	F	23/01/2014
29	Settlement of new Prime Minister with declarations on corruption contrast	C	18/02/2014
28	Bribery case in the Italian National Space Agency (follow-up) and EU Commission Report (follow-up)	FC	06/02/2014
27	Issuing of the EU Commission Report about corruption in the EU Member States	C	04/02/2014
23	Embezzlement cases in the Piedmont Governing Body	F	16/01/2014
21	'Ruby ter trial'(follow-up)	F	24/01/2014
21	EU Commission Report on corruption (follow-up)	C	03/02/2014
21	Settlement of new Prime Minister (follow-up)	C	19/02/2014
21	Embezzlement and bribery in the Lombardy Governing Body	F	04/03/2014
19	Embezzlement case for a member of the national Parliament and corruption case for the major of Verona	F	17/02/2014
19	Corruption case in the Lombardy public health system	F	13/03/2014
18	EU Commission Report on corruption (follow-up)	C	22/01/2014

Notes: the table shows the total number of corruption news items, the description of the corresponding event and its type (C stands for claims, F stands for facts, FC stands for cases in which news items on corruption facts overlap with those on corruption claims); *follow-up* means that corruption news item reported on that day refers to an event that happened on a previous day. **Source**: the Corruption News Database (CND).

Figure A.2
Persons convicted for corruption-related crimes by court district



Notes: the bar chart shows the total number of persons convicted for corruption-related crimes by court district over the observation period January−March 2014). **Source**: the authors' calculations based on data from the Directorate of Statistics of the Ministry of Justice.

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