



# Eliciting preferences for truth-telling in a survey of politicians

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**Honesty is one of the most valued traits in politicians. Yet, because lies often remain undiscovered, it is difficult to study if some politicians are more honest than others. This paper examines which individual characteristics are correlated with truth-telling in a controlled setting in a large sample of politicians. We designed and embedded a game that incentivizes lying with a nonmonetary method in a survey answered by 816 Spanish mayors. Mayors were first asked how interested they were in obtaining a detailed report about the survey results, and at the end of the survey, they had to flip a coin to find out whether they would be sent the report. Because the probability of heads is known, we can estimate the proportion of mayors who lied to obtain the report. We find that a large and statistically significant proportion of mayors lied. Mayors that are members of the two major political parties lied significantly more. We further find that women and men were equally likely to lie. Finally, we find a negative relationship between truth-telling and reelection in the next municipal elections, which suggests that dishonesty might help politicians survive in office.**

honesty | political elites | behavioral games | gender

A common stereotype across countries and time is “all politicians are liars.” Politicians often face incentives to lie rather than tell the truth, for instance, when damaging information can be hidden or undeserved credit can be claimed, while voters need accurate information to hold them accountable. Because lies in politics are hard to detect, politicians’ dishonesty makes it difficult for voters to evaluate their performance. The problem of lies in politics is old, but the rise of fake news and posttruth politics has recently revived concern (1–3). In principle, the prevalence of lies in politics, and the ensuing distrust, could be reduced if politicians in office were averse to lying. Indeed, honesty is often considered one of the most desirable traits in politicians because it provides an internal drive to adhere to ethical behavior even when such behavior is invisible to others (4–6). Yet, voters trying to tell honest and dishonest politicians apart face a vexing problem. Since politicians who bluff, displace blame, or use strategic deception try to appear honest, identifying those who are dishonest is extremely challenging.

Despite the importance of honesty in politics, sound empirical evidence about the observable correlates of preferences for truth-telling among politicians is lacking. A rapidly growing literature in behavioral economics and social psychology studies preferences for truth-telling (also called lying aversion or intrinsic honesty in the literature) in the general population by devising behavioral games that incentivize lying (7–9). Some empirical studies have used such behavioral instruments to study honesty in populations that are both powerful and burdened by concerns about the integrity of their members such as the banking profession (10). Yet, to our knowledge, no studies to date have used behavioral instruments to measure honesty in samples of political elites.

Supporting the intuition that some people are more honest than others, research about preferences for truth-telling finds clear individual differences in the disposition to lie (9, 11). While

situational elements affect lying behavior (12, 13), some people have a consistent preference for truth-telling even when lying is personally beneficial and not observable to others.

This paper studies truth-telling among politicians using a lying game with a nonmonetary incentive. We define a lie as misreporting private information and design a game in which politicians must flip a coin and have incentives to report heads. The literature defines several different types of such lies (14). This paper focuses on one specific type: nonobservable lies that only benefit the liar. Politicians face many situations in which they have private information, in which it is beneficial to them to be dishonest and in which their dishonesty has a low chance of being discovered. For example, politicians have been known to bury or misrepresent reports that do not align with their policy goals (see, for example, ref. 15). This constitutes dishonest behavior as the population is only allowed to see information that is in line with policy goals, leading to misdirection and making it difficult for the electorate to evaluate politicians’ performance and thus undermining accountability. We focus our analysis on lies that are typical of such situations.

The lying game was embedded in a large survey of 816 Spanish mayors of municipalities with more than 2,000 inhabitants conducted between July 2018 and January 2019. In standard behavioral games, lying is incentivized by conditioning a monetary compensation on obtaining a specific outcome in a luck task such as rolling dice or flipping coins (7, 16). However, a pilot study revealed that monetary incentives are inappropriate in a study of professional politicians because they become alarmed or offended by the association of offering money with accusations of corruption (*Materials and Methods*). Instead, we

## Significance

**Voters who would like to accurately evaluate the performance of politicians in office often rely on incomplete information and are uncertain whether politicians’ words can be trusted. Honesty is highly valued in politics because politicians who are averse to lying should in principle provide more trustworthy information. Despite the importance of honesty in politics, there is no scientific evidence on politicians’ lying aversion. We measured preferences for truth-telling in a sample of 816 elected politicians and study observable characteristics associated with honesty. We find that in our sample, politicians who are averse to lying have lower reelection rates, suggesting that honesty may not pay off in politics.**

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incentivized lying with a nonmonetary reward, a personalized report containing the results of the survey, which was highly valued by our sample. We recorded interest in receiving such a report at the start of the survey. At the end of the survey, we told mayors that they would only receive the report if they obtained heads in a private coin flip. As 88% of mayors were interested or very interested in receiving the report, they had an incentive to lie about the outcome of the coin flip. Because lying is incentivized effectively and reputational concerns are eliminated by the impossibility to tell if a particular politician lied, differences between subgroups in the propensity to report heads can be attributed to differences in preferences for truth-telling. Coin flipping and die rolling tasks have been shown to be valid measures of dishonesty as behavior in those tasks has been found to correlate with real-world measures of dishonesty such as avoiding paying for a ticket on public transport or not returning money when being overpaid (9, 17–20).

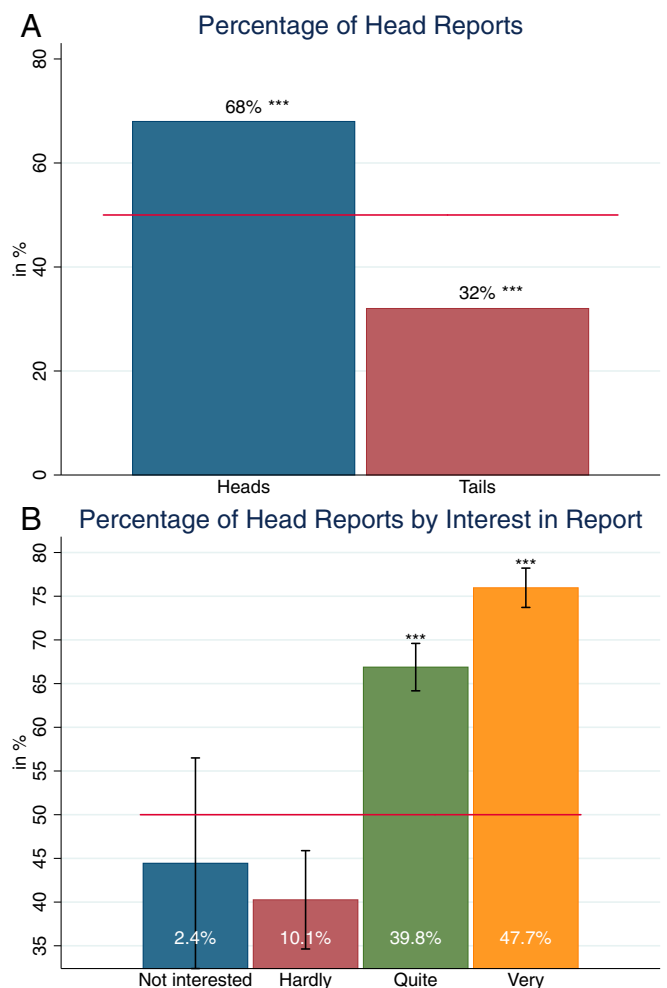
Using this design with nonmonetary incentives, we first discover that a large and statistically significant proportion of mayors lied. In fact, they lied more often than other populations previously studied using similar lying experiments, which typically find that people lie surprisingly little or not at all (11, 16). While these results appear to confirm the stereotype that politicians are likely to lie, in our game, there was extensive variation in this behavior. We then assess which observable characteristics are associated with preferences for truth-telling among mayors. The evidence suggests that women are equally as likely to lie as men, but mayors of large parties lie more often. Importantly, we find that dishonesty is significantly correlated with being reelected in our sample, even when controlling for actually standing for reelection. The finding that dishonest mayors are more likely to survive in office suggests that dishonesty may confer advantages in politics.

This paper uses a behavioral lying game to study lies among politicians. It hereby contributes to the growing literature in political science that uses behavioral games to study the dispositions of political elites, which has so far focused on traits such as the tendency to escalate commitment, status quo bias, and future discounting (21) (for a review, see ref. 22). We also contribute to the empirical literature in behavioral economics by adapting standard lying games to a population where their administration is not feasible and by focusing on a population that has not been studied before.

## Results

Fig. 1 shows the frequency of lying in our study. It depicts two key findings. First, a substantial proportion of politicians lied. We find that nearly 68% of subjects reported heads, as shown in Fig. 1A. The empirical distribution is significantly different from the expected 50% if everyone was telling the truth, which is confirmed through a two-sided binomial test ( $P < 0.01$ ). This high frequency of lying differs from that found in the most similar designs in the literature. For instance, ref. 16 administered a truth-telling experiment to a general population sample in which they asked respondents to flip a coin four times and provided monetary rewards for obtaining tails. The distribution of the reported outcomes is indistinguishable from the truthful distribution. In a one-shot game administered to a larger sample, only 44% of the sample reported the winning coin flip outcome (they hypothesize that some people lied to their monetary disadvantage due to privacy or self-image concerns). Another study, ref. 10, finds that 52% of a control sample of bankers and 58% of a banker sample framed in terms of their professional identity reported the coin flip outcome that led to a monetary reward.

Second, Fig. 1B demonstrates that the nonmonetary incentives used in this research were a powerful motivator for lying. A large majority of mayors was interested in receiving a report of the results of the survey, with 48% reporting that they were very



**Fig. 1.** Proportion of mayors who report heads and tails and interest in receiving the report. (A) The percentage of mayors reporting heads and tails is displayed above the bars, showing that they differ significantly from the objective 50% benchmark (two-sided binomial test), indicating a high frequency of lying. (B) The percentage of mayors who reported heads depending on their interest in the report is given by the height of the bars and additionally, at the bottom of the bars, the share of mayors in each category of interest in the report is displayed. Standard errors around the mean are given by the intervals. Stars indicate a significant deviation from the 50% benchmark calculated by a two-sided binomial test, \*\*\* $P < 0.01$ .

interested and 40% reporting that they were quite interested. The reported outcome of the coin toss varied sharply depending on interest in the report, with 76% of those very interested and 67% of those quite interested reporting heads (both significantly different from 50%, two-sided binomial test,  $P < 0.01$ ), compared to 44.5 and 40% among those who were not at all or only somewhat interested, respectively (both not statistically different from 50%, two-sided binomial test,  $P > 0.1$ ). These results indicate that the prospect of receiving the report incentivized lying particularly well among those who valued the reward most, suggesting that our incentivization mechanism is a valid alternative tool to monetary rewards when studying lying among political elites.

**Gender.** Would honesty in politics increase if there were more female politicians, or are women in politics no different from men? A large literature has investigated whether men or women are more likely to lie in different types of behavioral games and

has found that women are not always more averse to lying. Gender differences depend on the type of lie and the probability of being discovered. A meta-analysis of sender–receiver games finds that men are more likely to tell lies than women when they harm or benefit the receiver, but there are no differences in the case of Pareto white lies which benefit both (23). In games that vary the risk of being detected, men are more likely to lie than women when the risk of being detected is high, but there is no difference when the risk is low (24).

We are interested in lies that neither directly harm nor benefit others and have no risk of being discovered. These types of lies match situations of interest in politics in which a politician has private information unknown to voters. Our lying game creates such a setting, which should be less conducive to gender differences in lying than settings where other players are directly harmed or the risk of being discovered is high.

Fig. 2A confirms that there is no significant gender difference in the percentage of mayors who reported heads. A two-sided binomial test confirms that both the proportions of female and male mayors are significantly different ( $P < 0.001$  for both) from

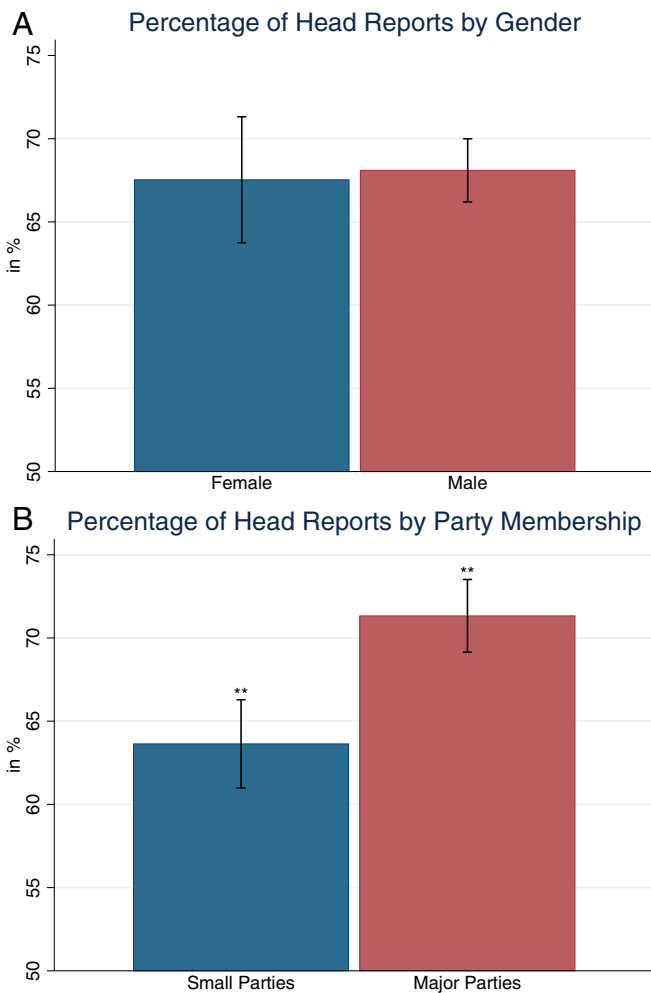
the 50% benchmark that we should have observed if people had been truthful on average. A  $t$  test that tests for differences between the percentage of reported heads by male and female mayors supports the null hypothesis of no difference ( $P = 0.89$ ). To assess the robustness of these findings, we conducted a linear probability regression analysis (Table 1). As expected, we find that gender does not predict reporting heads in any specification. These results suggest that increasing the number of female politicians, counter to popular stereotypes, would not have a direct impact on the frequency of political lies, at least in the type of situations we study.

**Party Membership.** A key observable characteristic of politicians is their party membership. We examine if politicians from different types of parties differ in their preferences for truth-telling, comparing the two largest nationwide parties (Partido Popular [PP] and Partido Socialista Obrero Español [PSOE]) to the other parties, such as regional and local parties. Large parties may be more likely to contain dishonest politicians for two reasons. First, party membership and dishonesty could be linked via more frequent exposure to dishonest practices in the organizational structures of major parties. Consistent with this possibility, previous research shows that large parties tend to have larger bureaucratic apparatuses which have been linked to more corrupt structures (25, 26). In the specific case of Spain, scandals revealing systemic corruption have affected the two main parties (27). Second, dishonesty may be more prevalent in large parties due to self-selection of more dishonest politicians into these parties as their greater access to resources and power provides more opportunities for corruption.

We find that mayors who are members of one of the two major parties in Spain, PP and PSOE, reported heads significantly more than those who are members of smaller parties. Fig. 2B shows that 71% of mayors from major parties reported heads, while only 64% of those from smaller parties reported heads. For both groups, a two-sided binomial test rejects the null of truthful behavior (with  $P < 0.001$  for both), and a  $t$  test for difference in means rejects the null of subgroup equality ( $P = 0.02$ ). The regression results (Table 1) support this finding. Specifically, the regression coefficient suggests that being a member of one of the major parties increases the chance of reporting heads by eight percentage points. Together with the finding that all groups had significant levels of lying, this suggests that members of major parties lied significantly more.

**Reelection.** We now turn to the relationship between preferences for truth-telling and political survival. Previous research has shown that politicians who have less agreeable personality traits outperform others on various indicators of political success, including reelection (28). In the case of dishonesty, a correlation could emerge due to two main processes. First, dishonest politicians might be more willing to defy deontological norms in the pursuit of other goals (such goals could be egoistic such as winning office or altruistic such as better representing constituents' interests). If undiscovered or unpunished, this willingness to defy deontological norms could confer a political advantage at governing and campaigning effectively, resulting in higher political survival. The relationship between honesty and reelection could also emerge due to self-selection into rerunning for office. Inexperienced, honest politicians should quickly realize that in some situations, governing might be difficult without getting “dirty hands” (29). They may resent being confronted with such moral dilemmas and decline to run again.

In this section, we study if honest and dishonest politicians differ in their stated desire to rerun for office, in whether they actually compete again, and in their reelection rates. Our survey asked mayors if they would be willing to rerun for office in the next municipal elections, which took place in May 2019, 5 mo



**Fig. 2.** Percentage of mayors who reported heads by their individual characteristics. (A) The percentage of mayors reporting heads by their gender and (B) membership in a large party. All categories exceed the 50% benchmark (two-sided binomial test). The difference between genders is negligible. However, there is a highly significant difference between members from major versus minor political parties. Standard errors are given as intervals around the mean. Stars indicate significant deviation of reported heads between subgroups (two-sample  $t$  test),  $**P < 0.05$ .

**Table 1. Linear probability regressions with gender and membership in a major party as independent variables**

	(1) Reported heads	(2) Reported heads	(3) Reported heads	(4) Reported heads	(5) Reported heads
Interest report	0.31*** (0.05)	0.33*** (0.05)	0.31*** (0.05)	0.33*** (0.05)	0.33*** (0.05)
Gender	0.00 (0.04)	0.00 (0.04)			-0.00 (0.04)
Major party			0.08** (0.03)	0.08** (0.03)	0.08** (0.03)
Population size, log		-0.02 (0.02)		-0.02 (0.02)	-0.02 (0.02)
Age		-0.00 (0.00)		-0.00 (0.00)	-0.00 (0.00)
Margin 2015		-0.12 (0.11)		-0.14 (0.11)	-0.14 (0.11)
Constant	0.41*** (0.05)	0.67*** (0.19)	0.37*** (0.05)	0.63*** (0.19)	0.63*** (0.19)
Observations	759	700	759	700	700

Standard errors are in parentheses. \*\* $P < 0.05$ , \*\*\* $P < 0.01$ . The dependent variable is a dummy for whether a mayor reported heads.

after the end of the fieldwork. We also collected data on whether they actually did run again in those elections by examining if they were in the first three positions of the ballot (Spain uses a closed-list PR system, and we find that a nonnegligible number were placed toward the end of the ballot, signaling support for their party but unwillingness to serve as a mayor again [*Materials and Methods*]). The stated desire to rerun for office and actually rerunning measure self-selection and are key control variables in our reelection analysis.

A large majority of mayors sought reelection. In the survey, 80% of mayors reported that they would surely or probably want to run for reelection, and the percentage of those actually running for reelection is close to 83%. Specifically, ca. 80% of mayors who reported tails and 84% of those who reported heads reran for office. Importantly, this difference is not statistically significant ( $t$  test,  $P = 0.13$ ) so that self-selection effects into rerunning should not be of particular concern. Fig. 3 *A* and *B* present the percentage of mayors reporting heads in the lying experiment depending on the stated desire to rerun and on the actual decision. Interestingly, while those who reported no desire to run again chose heads more frequently than those who reported wanting to rerun (70 and 68%), those who subsequently did not run for reelection chose heads less frequently than those who did run again (62 and 69%). One explanation of this discrepancy is that dishonest mayors are more likely to misreport their willingness to run. Consistent with this, we find that of those who reported no desire to run again but actually did rerun (roughly 8% of the sample), 78.5% reported heads in the lying experiment. This percentage is much lower (60.5%) among those who did not rerun despite responding that they wanted to (6% of the sample), as well as among those who followed through on their stated desire to seek or not to seek reelection (68 and 63.5%, respectively, reported heads). These results are consistent with the claim that dishonest mayors are more likely to conceal their desire to seek reelection.

We now turn to the question of whether dishonest mayors are more likely to survive in office. From the mayors in our sample, 65% were sworn in as mayors again in 2019. Fig. 3 *C* shows that reelected mayors reported heads significantly more than mayors who were not reelected (71% compared to 63%). It is highly unlikely that the behavior of the reelected and that of the not reelected mayors stems from the same distribution ( $t$  test,  $P = 0.03$ ). Next, we examine the relationship between dishonesty and reelection success in a regression framework. Specifically, we are concerned that the correlation may not imply that dishonesty facilitates political survival if it is entirely driven by self-selection of dishonest mayors into running for office or if dishonest mayors choose to run in different environments, particularly in less competitive elections, which in turn facilitate reelection. This would be especially problematic if less competitive environments increase the reelection chances of dishonest mayors more than of honest ones. We measure competitiveness as the margin of the seat share that the party with the most seats holds above that of the party with the second most seats obtained

in the 2015 mayoral elections (high margins indicate low competitiveness).

Table 2 shows the results of the regression models. Reporting heads is associated with an eight percentage point higher likelihood of being reelected (model 1). We find a substantial and significant relationship between reporting heads and reelection even controlling for actually running for reelection in the 2019 municipal elections, the competitiveness of the 2015 election results, log population size, gender, and party membership (model 2). The relationship is also robust to additionally controlling for the potential interaction between dishonesty and competitiveness (model 3). Importantly, while competitiveness has a large and significant impact on reelection success, we do not find a differential effect of competitiveness on dishonest compared to honest mayors. Restricting the sample to those mayors who reran for reelection yields similar results (model 4). These results are consistent with the claim that dishonesty confers an advantage for political survival that goes beyond differences in self-selection and in the competitiveness of elections.

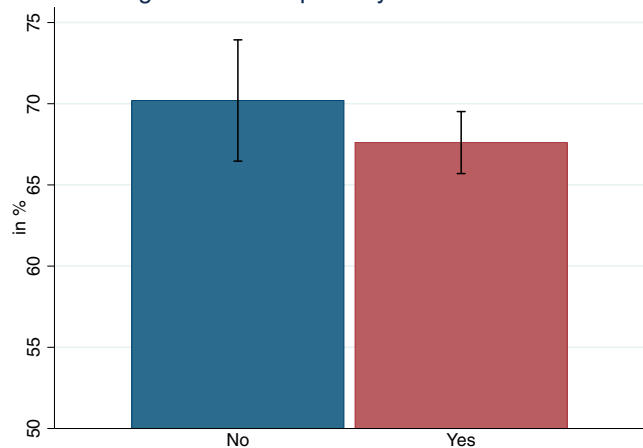
The result that dishonest mayors are more likely to be reelected can provide a microfoundation to the well-known finding that discovered corruption is often not, or only mildly, punished electorally (30–32). Our findings suggest that undiscovered lying promotes electoral success, perhaps because it allows politicians to gain an advantage over their opponents while avoiding the possible electoral costs. It seems likely that a tendency to lie increases the likelihood of engaging in corrupt behavior as well. If corruption scandals erode support for a politician, this could offset the advantage conferred by other undiscovered dishonest behavior. Ultimately, the two effects would cancel each other out and lead to the finding of no correlation between corruption scandals and reelection success.

## Discussion

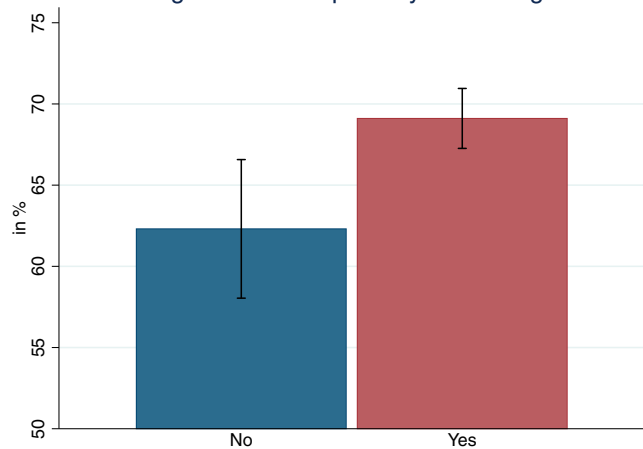
Our paper introduces a version of the standard coin flip honesty experiment that is well suited to study preferences for truth-telling among politicians. Rather than incentivizing lying through monetary incentives, as is standard in lying games, we used a report of the survey results as an incentive. This modification allowed us to bypass politicians' aversion to monetary compensation because of concerns that receiving compensation may be perceived as engaging in corruption. This nonmonetary measure is very successful at incentivizing lying, as a large and significant percentage of mayors lied in our study. Our procedure measures lying aversion in a type of setting where the lie is not observable and only directly affects the liar. This is representative of situations in which politicians have access to private information that they can misreport or manipulate to their own advantage, thereby reducing the ability of voters to hold them accountable. Such situations are common in politics, but further research is needed to study behavior in other situations such as when politicians' lies have a clear negative impact on someone else or are easily detectable.



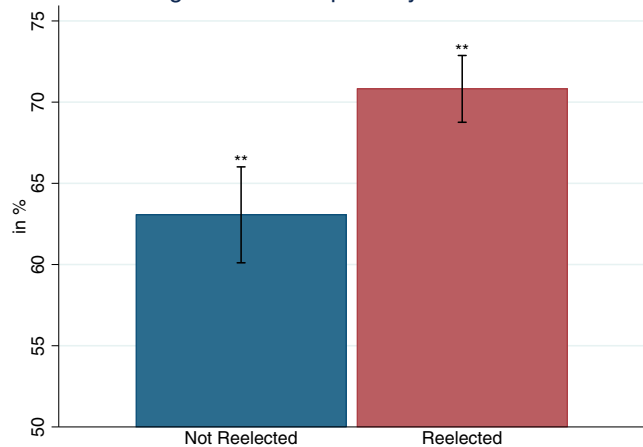
**A** Percentage of Head Reports by Desire to Rerun in 2019



**B** Percentage of Head Reports by Rerunning in 2019



**C** Percentage of Head Reports by Reelection in 2019



**Fig. 3.** Percentage of mayors who reported heads by measures relevant to reelection. The percentage of mayors reporting heads by (A) their reported desire to rerun for office, (B) actually rerunning for office, and (C) reelection results. All categories exceed the 50% benchmark (two-sided binomial test). The difference between those who want to rerun and those who do not is small and not statistically significant. Similarly, there is no statistical difference between those who reran for office and those who did not. However, there is a highly significant difference between reelected and not reelected mayors. Standard errors are given as intervals around the mean. Stars indicate significant deviation of reported heads between subgroups (two-sample *t* test),  $**P < 0.05$ .

Using the modified lying game, we first discover that some observable characteristics are predictive of lying behavior among politicians. While we find no gender differences in lying behavior, members of major parties are more likely to lie than others. While we do not claim that one can simply look at individual attributes and detect dishonesty among politicians, our results do suggest that there is systematic variation in lying aversion.

The finding that dishonest mayors are more likely to be reelected in the next municipal elections, and that this relationship is not solely driven by differences in self-selection or the competitiveness of the environment, is consistent with the possibility that being dishonest confers some political advantage and facilitates survival. Such advantage could stem from two different mechanisms. First, it could be related to a different policy-making style if politicians are willing to be dishonest in order to achieve their, or their constituents', goals and the achievement of such goals is then rewarded by voters. Second, even if they do not differ in terms of policy-making, dishonest politicians who are willing to distort the truth might communicate and campaign more effectively, resulting in higher popularity and reelection rates. These two possibilities have very different normative implications, ranging from the interpretation that occasionally suspending conventional moral norms can improve the ability to achieve policy goals to the interpretation that dishonesty constitutes an added obstacle to political accountability. Therefore, it is relevant to first assess the generalizability of these results by replicating the key findings in other settings and to identify the underlying mechanisms that may link dishonesty to political survival.

### Materials and Methods

**Data Availability.** The data and code files to replicate the results of the paper have been deposited at the Harvard Dataverse and are available at <https://doi.org/10.7910/DVN/MPAZUD> (33).

**Setting, Participants, and Fieldwork.** In order to study honesty among politicians, we fielded an original survey administered to Spanish mayors. Spain is an excellent setting for our study. It is an advanced industrial democracy which ranks 13th out of 27 European countries in a combined quality of government score (34). In this sense, Spanish mayors are more typical of the population of interest than, for example, Scandinavian politicians, who have received extensive attention because of the abundance and quality of data in countries like Sweden (35, 36) but who might be outliers in a comparative perspective. The Spanish local institutional setting and the capacity of municipal governments are also fairly typical for advanced industrial democracies. The political system is decentralized with elected governments at the national, regional, and municipal levels. Municipal spending amounted to 14% of total public expenditure in 2007 according to the Organization for Economic Co-operation and Development, a figure similar to countries like Germany, Austria, and Portugal. Local councilors are elected every 4 y with the number of councilors depending on population size. In municipalities with more than 250 inhabitants, citizens elect councilors using a closed party list proportional representation system. Councilors then elect a mayor, who is the head of the party list which has obtained an absolute majority of votes in the investiture vote. If no party commands an absolute majority of votes from councilors, the head of the party list with the most votes from voters in the municipal elections becomes mayor. In practice, this implies that in more than 90% of cases the head of the most voted party list also becomes the mayor.

Our questionnaire included a range of questions about mayors' background experiences, outside options, political ambition, and political preferences, as well as an embedded lying aversion measure. The survey was programmed and administered online and was pretested through cognitive interviews with 12 politicians who were not in our sample and adjusted according to the feedback received. Survey invitations were sent to all 2,282 Spanish municipalities with more than 2,000 inhabitants. We collected the official email addresses of mayors by consulting websites and calling the municipalities. Informed consent was obtained from all participants. The consent form provided accurate information about the goals of the study, the data handling procedures, the relevant legislation, and the contact details of the principal investigator. Ethical approval was not required, but all materials were reviewed by a legal advisor. In July 2018, we

**Table 2. Linear probability regressions with reelection as dependent variable**

	(1) Reelected	(2) Reelected	(3) Reelected	(4) Reelected
Reported heads	0.08** (0.04)	0.05* (0.03)	0.08* (0.05)	0.10* (0.06)
Ran for reelection		0.77*** (0.04)	0.77*** (0.04)	
Margin 2015		0.40*** (0.09)	0.52*** (0.15)	0.66*** (0.19)
Gender		-0.02 (0.03)	-0.02 (0.03)	-0.04 (0.04)
Population size, log		-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.02)
Reported heads × margin 2015			-0.17 (0.18)	-0.26 (0.22)
Constant	0.59*** (0.03)	0.01 (0.14)	-0.02 (0.14)	0.72*** (0.17)
Party dummies	No	Yes	Yes	Yes
Observations	758	754	754	624

Standard errors are in parentheses. \* $P < 0.10$ , \*\* $P < 0.05$ , \*\*\* $P < 0.01$ . The dependent variable is a dummy for whether a mayor was reelected. Model 4 reports the results for the sample restricted to mayors who reran for election.

launched a pilot study with mailings to two autonomous communities. We made further adjustments to the questionnaire based on an analysis of the initial 80 responses and the feedback received from participants by email. The main fieldwork was conducted between September 2018 and January 2019.

In order to maximize control over data collection, we did not subcontract the fieldwork to a survey company but conducted it in-house by hiring and training research assistants. We sent up to five reminders by email. In addition to emails, we made phone calls to all municipalities that had not responded. We tried to talk with the mayor, or their secretaries if that was not possible, and sent personalized invitation emails after these conversations. An important concern was that mayors may delegate responding to surveys to subordinates. To address this issue, we sent the invitations to the official email addresses of mayors rather than to generic institutional addresses, and we stressed in the invitation email and on the first page of the survey that the survey had to be taken by the mayors themselves. We cannot rule out that in a few cases the survey was filled in by an aide of the mayor, yet examining responses to open-ended questions about personal information unlikely to be known by aides suggests that the survey was answered personally by the vast majority of mayors. Specifically, we find that only 31 out of 816 respondents did not fill in the occupations of the mayors' fathers and mothers, respectively. This is a very high response rate to an open-ended question that an aide answering the survey would be very likely to skip since answering the question was nonobligatory. Participation in the survey was not compensated. In the pilot study, we embedded a financial reward in a lying aversion game, but as explained below, we decided to eliminate any monetary compensation due to the strong complaints it generated. The simplified version of the honesty game was not preregistered. Further details about the consent form and the questionnaire can be found in *SI Appendix*. We collected a total of 816 full responses to the lying aversion measure, which represent 36% of the population, an average to high response rate in elite surveys.

**New Measure of Lying.** Self-reported integrity is not a trustworthy measure of honesty and may even be negatively correlated with actual honesty. To circumvent this difficulty, previous research has measured lying aversion through a variety of behavioral methods (for reviews, see refs. 37 and 38). In our setting, observability of the decision to lie is particularly relevant because politicians are concerned about maintaining a reputation for honesty. We chose a nonobservable task to reduce the risk that politicians' decisions were motivated by the wish to appear honest to us. Such tasks were introduced by ref. 7, who ask subjects to roll a die privately and to report the outcome, with higher values leading to higher payoffs. To identify the share of liars, researchers compare the theoretical distribution of how often each die side should come up with the distribution of reported outcomes. An alternative version of this experiment uses a coin rather than a die (10, 16). Because lying is incentivized equally for all individuals, and reputational concerns are eliminated when individual decisions are not observable, differences in the prevalence of lies can be attributed to lying aversion. Subgroup analysis can reveal which individual characteristics are associated with lying aversion. We explicitly told mayors that we cannot observe the true outcome of their action. Due to the nature of the population of interest, we needed a task that was quick and easy to conduct and therefore used a coin flipping rather than a die rolling task. In case some of the mayors did not have a coin at hand, we provided a link to a website that virtually throws fair coins.

In lying aversion experiments, it is customary to use money as an incentive because subjects are assumed to derive a similar level of utility from any given amount of money. However, offering monetary incentives was not feasible in this population. Politicians are subject to more scrutiny than other citizens and are often accused of benefiting economically from holding office. Thus, we suspected that politicians might feel more uncomfortable than other populations when being offered a monetary reward. Yet, to keep with the literature, we designed a lying game with monetary incentives (in line with legal limits on what politicians are allowed to accept) and included it in a pilot study that was answered by mayors. However, we received multiple emails and phone calls from mayors who were offended by our attempt to pay them a monetary reward. Considering that mayors are generally very busy, the fact that they took the time to complain about an academic study should further illustrate how big a problem using monetary rewards presents. Instead of serving as an incentive, money served as a disincentive.

The pilot included an alternative, nonmonetary lying aversion measure, and in this case we found that the incentive was very well received. We decided to use the desire to know how mayors compare to other politicians as the incentive device for the lying experiment. At the beginning of the survey, we asked mayors whether, and how strongly, they would like to receive a personalized report about the survey results. As shown in Fig. 1B, mayors were interested in receiving the report. At the end of the survey, we told them that we could only send the reports to some mayors. A coin flip that the mayors themselves had to conduct and then report decided whether they would receive it or not. If they reported heads, they received the report, and if they reported tails, they did not. If mayors had an interest in receiving the report, then they had an incentive to report heads irrespective of the actual outcome and thus to lie. The expectation was therefore that compared to the theoretical distribution, many more head reports would occur. This is confirmed in *Results*. Our identifying assumption is that mayors do not lie to their disadvantage.

**Statistical Analyses and Regression Model.** In order to estimate the relationship between personal characteristics and dishonesty, we conducted linear probability regressions of the following form:

$$P(\text{Heads}) = \alpha + \beta_1 X_1 + \beta_2 \text{Int.Rep.} + \beta_3 \text{Controls} + \varepsilon. \quad [1]$$

We control for interest in the report by including a dummy that takes value 1 if the mayor reported that he or she was interested or very interested in the report. For the gender and party analyses, we use the probability to report heads as the dependent variable and gender and membership in a major party as the independent variables ( $X_1$ ), respectively. The coefficient estimates can be used directly to compute the effect of the independent variable. For example, the estimated coefficient of major party is 0.08, which implies that being a member of a major party increases the probability of reporting heads by eight percentage points.

Importantly, all our estimates are likely to be a lower bound. This is because the group of mayors who reported heads includes both dishonest mayors who obtained tails and lied and honest mayors who obtained heads and reported truthfully. This latter group should be similar to honest mayors who obtained tails and reported tails. The mixed composition of our heads group implies that our estimates should be larger if we could isolate dishonest mayors.

For the reelection analysis, we use reelection as the dependent variable and reported heads as the independent variable to model the claim that political outcomes are affected by politicians' honesty rather than the other way around. The linear probability regression equation is

$$P(\text{Reelected}) = \alpha + \beta_1 \text{Heads} + \beta_2 \text{Rerunning} + \beta_3 \text{Controls} + \varepsilon. \quad [2]$$

We control for the effects of the other variables of interest to ensure that the large relationship between reelection and reporting heads is not driven by one of the other characteristics such as party membership. Here we control for party membership by using party dummies rather than a dummy for membership in one of the largest parties as reelection results are impacted by the party itself rather than the size of the party. As a supplementary analysis, we restrict the sample to those mayors who reran for election and show that the relationship between dishonesty and reelection holds for this subsample.

For both specifications, we added controls such as log population size, the margin of the percentage of seats held by the party with most seats in the council compared to that of the party with the second most seats, and mayors' ages. We find that the relationship is robust to such controls. As some of the additional controls are not available for all mayors, our regressions contain slightly fewer observations than the 816 full responses. In addition, we excluded the five mayors who did not respond to the question about their interest in the report.

To assess whether behavior is significantly different from the theoretical 50% benchmark, we conducted binomial tests. We used unpaired two-sample *t* tests with a two-sided alternative to test whether the mean behavior of mayors in the categories into which we subdivided them, e.g., main party members versus minor party members, is significantly different from each other.

We excluded the 10 mayors from the analysis who took less than 5 s to fill out the coin flipping question. As it was impossible to read the question, take out a coin, flip it and report the result within 5 s, these mayors lied to us about having performed the coin flip at all. To prevent potential bias from introducing an additional lie element to the data, we excluded them. In addition, we excluded mayors who took more than 90 s to complete the question as it is likely that their responses are of lower quality due to inattention. For robustness, we check if this influences the results and find that they are robust to including these mayors (SI Appendix).

**Robustness Analyses.** To assess whether our sample is representative of the Spanish mayor population, we compare our sample to the whole population of mayors in relation to the share of women, average population size, percentage with a university degree, mean age, mean turnout, and the shares of major parties and national parties. We find that our sample is representative of the population for most characteristics (SI Appendix, Table S1) but that mayors are on average 2 y younger and that municipalities are smaller in our sample. The size of the difference regarding age is small enough that we do not have to be concerned with selection issues. For municipality size, it is important to note that the difference is largely driven by the size of the largest municipalities in Spain. We also conduct an out-of-sample prediction analysis to test whether our sample is biased and find that there is no statistically significant difference in predicted behavior compared to actual behavior (SI Appendix, Table S2).

We next examined whether our results are robust with respect to removing mayors who took a long time answering the coin flip question. To that end, we reran the regressions of interest using cutoffs with 5 s less or more than the cutoff of 90 s, as well as removing the cutoff entirely. The results (SI Appendix, Tables S3 and S4) are robust in terms of the sign, size, and significance. We also examine whether our results are robust with respect to the standard errors that we chose. Therefore, we reran all analyses with heteroskedasticity robust standard errors. We find that our results are robust to changing the standard error specification (SI Appendix, Tables S5 and S6).

A possible issue with using linear probability models is that the fitted values might not be bounded between 0 and 100%. We examine the fitted values (SI Appendix, Fig. S1) and find that the majority lie between 60 and 90%. This means that the theoretical unboundedness of linear probability models is not an issue.

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