

**“Just Words? Just Speeches?”**  
**On The Economic Value of Charismatic Leadership**

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**Abstract**

Despite the importance attributed to leadership in many economic, organizational and political contexts, the topic has received little attention in the economic discipline. In other fields, however, extensive research documents important characteristics of effective leaders, including the ability to influence followers through "charismatic" communication. We report a field experiment that examines whether charisma—in the form of a stylistically different motivation speech—can induce costly effort among workers, and therefore generate higher output for a firm. In our experiment temporary workers have to prepare envelopes for a fundraising campaign conducted on behalf of a hospital. Workers are exposed to speeches that differ in the number of charismatic elements, as well as to varying financial incentives. We observe that workers who are given a charismatic speech increase their output on average by about 17% relative to the workers who listen to the standard speech. This performance effect of charisma is statistically significant and comparable in size to the positive effect of performance pay.

Key words: Field experiment, charisma, work performance, incentives, leadership

JEL-Codes: C93, D03, D23, M12, M52

# 1 Introduction

Leadership has long held allure as a potentially powerful influence on human behavior. From Plato’s discussion of the importance of “philosopher kings” to modern research and training in management and politics—and throughout history in the arts—leadership is valued as a powerful tool for effecting collective activity. The importance of leadership has, for a long time, featured prominently in sociological and social psychological theories of organizations and bureaucracies (Barnard, 1940; Weber, 1947). This research often parallels conventional perceptions of the functions of leaders, by noting that effective leaders influence follower behavior not only through the design of incentives and institutions, but also through personal abilities to persuade and motivate (House, 1977). Hence, a leader’s “charisma”—the ability to communicate in a manner that persuades followers—is an important channel through which leaders exert influence.

However, the field of economics is one domain into which the importance of studying and understanding leadership has failed to make significant inroads. Whereas economists study “firm owners,” “managers,” and “policymakers,” the terms “leader” and “leadership” are often conspicuously absent from such discussions.<sup>1</sup> One natural interpretation is that economists have tended to focus on incentives and contract design as the primary mechanism through which organizational leaders influence and motivate workers (Lazear & Rosen, 1981; Holmström, 1982; Holmström & Milgrom, 1991; Lazear, 2000); this mode of influence is usually referred to as “transactional leadership” in the political science, management, and psychology literatures (Bass, 1985; Burns, 1978). Economic research generally ignores the “softer” channels through which other social scientists assume an important part of leaders’ influence can occur. Indeed, the very limited study of mechanisms through which leaders might directly persuade followers to work harder in economics generally focuses on situations where the leader has private information regarding the productivity of follower efforts, and where a leader’s observable costly actions convey such information (Hermalin, 1998; Potters, Sefton & Vesterlund, 2007). However, the idea that leaders can persuade workers to work harder, by employing rhetorical tools or charismatic communication is largely absent from economic research.<sup>2</sup>

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<sup>1</sup> For example, the two words are entirely absent from a recent prominent economic article on variation in management practices (Bloom and van Reenen, 2010), implicitly suggesting that managers do many things, but “leading” is not one of them.

<sup>2</sup> A notable exception is the recent work of Kvaløy et al. (2015). Using a field experiment, these authors explore the extent to which the inclusion of a small number of motivational sentences in the job instructions increases the performance of workers in a data entry job. They find that the presence of a few motivational sentences has a

Part of the skepticism in economics likely arises from the difficulty of modeling how words alone—without their conveying costly signals—can motivate people to change their behavior (e.g., workers to exert more effort). Indeed, a recent theoretical model of how “charismatic” leaders influence followers (Hermalin, 2014) assumes that at least part of this influence is due to some workers who respond irrationally to a leader’s charisma. Another reason, however, may be that there is no compelling evidence, for economists, that simply varying how a leader communicates can influence workers to exert more effort. Although the fields of psychology and management have contributed much to understanding leadership as a phenomenon, there are still many limitations inherent to those fields that bound what conclusions we can draw both from the existing field studies and laboratory experiments. For example, field studies predicting outcomes from measured leadership styles typically do not instrument the measured leadership styles, which are endogenous (see Antonakis, Bendahan, Jacquart, & Lalive, 2010 for a detailed discussion). A leader may, for example, exhibit more or less of a particular leadership style as a function of follower or group performance and/or other omitted variables (see Koene, Vogelaar, & Soeters, 2002 as an example). Also, knowledge of leader performance outcomes biases ratings of leader behavior (Rush, Thomas, & Lord 1977). Moreover, while psychologists have studied manipulations of charisma in laboratory studies (e.g., Howell & Frost, 1989; Shea & Howell, 1999; Towler, 2003), the tasks on which participants—usually students—have worked are typically trivial, low stakes, or hypothetical and never compared to strongly incentivized counterfactual conditions.

To help close this gap, we report an experiment intended to test, from an economist’s perspective, the performance effects of the “softer” leadership mechanisms studied by organizational psychologists. In particular, we test whether “charismatic” leadership, in the form of a stylistically different speech given by a leader to a group of workers, can lead to higher effort on the part of the workers.

For a clean identification of the charisma effect, it is important to hold many dimensions of the speeches constant. Hence, we let the same individual (a trained actor) deliver the two speeches (so as to avoiding confounds regarding appearance or other fixed-effects due to the individual), and the two speeches had the same number of words. We also ensured that the content of the speeches, that is, the de facto topics and themes presented, were qualitatively very similar and that only the message delivery mechanism varied, as a function of the

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positive effect only when combined with explicit financial incentives. However, Kvaløy et al. do not study the effect of charisma. They are interested in the effect of a (written) motivating message per se. In our study there is always a motivating message, orally delivered by the same leader. We measure how different ways of delivering the message (charismatic vs. non-charismatic) shape the effect of the message on workers’ performance.

leader's charismatic communication techniques in conveying the message. In addition, the ordering of the speech content was very similar. Also, given the context of the speech (fundraising drive for a children's charity), it was important to ensure that any differences between the two speeches would not be explained by differences in moral conviction, which we held constant as well, by including similar numbers of moral appeals across the two speeches (a manipulation check using an independent sample of speech raters confirms that the perceived moral conviction does not differ across the two speeches).

To be able to quantify the impact of charisma on worker performance, we also compare its effectiveness with the effect of directly paying workers for performance. That is, starting from a baseline in which the leader provides a standard (low-charisma) speech and there are only flat financial incentives, we introduced two treatment conditions each of which varies one of these elements. In one condition, as described above, we added charismatic elements to the leader's communication. In the other, we provided workers with variable financial incentives, based on their output. This design allows us to provide a comparison of the increase in output produced through motivating workers with greater pay versus motivating them through the use of charismatic communication. To make this comparison informative, we increased the piece rate in our incentive condition up to the point at which we expected the cost per letter to remain roughly constant. Whereas stronger incentives might have further increased output, such payment schemes would not have been reasonable, because they would have increased the cost per letter. In this sense, we compare the charisma treatment with arguably the strongest piece rate scheme that still made business sense in our environment.<sup>3</sup>

As expected, we find that financial incentives significantly increase workers' performance. Compared to the baseline condition, workers in the piece rate condition increase their output by about 20%, an increase that is similar in size to those found in other field studies (e.g., Lazear, 2000; Shearer 2004). More interestingly, however, is that we find that our charismatic motivation speech has a comparably positive effect on performance. In the charisma condition workers' output increases by about 17% relative to the baseline condition. This effect is highly significant and statistically not distinguishable from the effect of financial incentives. Moreover, whereas the piece rate condition engenders a small and insignificant increase in the cost per letter, the charisma condition leads to a significant decrease in the cost per letter of about 15%. Quality checks reveal that the positive effects of

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<sup>3</sup> The British minimum wage legislation made it impossible to use a pure piece rate contract. The pay-for-performance scheme we used therefore corresponds to an incentive contract with a safety guarantee (the Safelite company studied in Lazear, 2000 uses the same type of contract to motivate their windshield installers).

charismatic communication and financial incentives do not come at the cost of lower quality. If anything, quality is slightly higher in the piece rate condition and the charisma condition than in the baseline condition.

To the best of our knowledge, our paper is the first to document a causal effect of a charismatic motivation speech on worker performance in an economically relevant environment. Previous studies have established that non-monetary motivation tools can have a significantly positive impact. For example, it has been shown that purely symbolic awards (Kosfeld and Neckermann, 2011; Bradler et al. 2013) or messages assuring workers that their work has meaning (Grant, 2008; Kosfeld et al. 2014) increase workers' output. Moreover, Kvaløy et al. (2015) show that including a few motivational sentences in a worker's task description increases performance—at least when the motivational message is combined with financial incentives. However, our study shows that it is not only important to provide workers with information about the meaning and importance of their job, but it also matters how the message is delivered. If the leader uses rhetorical tools that make him appear as more charismatic, the same information has a much larger positive impact on workers performance, than if he or she transmits the message in a rather uncharismatic manner.

The remainder of the paper is structured as follows: In the following section, we discuss the concept of charisma in more detail. Section 3 describes our design. In section 4 we develop an ad-hoc model and derive our hypotheses. Section 5 reports our manipulation checks and section 6 discusses our main results. We conclude in Section 7.

## **2 Some Background on Charisma**

Because the concept of charisma is rarely used in economic research, we find it useful to provide some background. The term “charisma” (from the Greek “*χάρισμα*,” which means gift) was first used by Max Weber (1947) to describe leaders who appeared to have “supernatural, superhuman, or at least specifically exceptional powers or qualities” (p. 358). Such leaders are saviors who guide followers towards a mission undergirded by “enthusiasm, or of despair and hope” (Weber, 1968, p. 49), and this particularly in crisis situations. This type of authority was revolutionary, was very different from bureaucratic authority, and broke with tradition (Weber, 1968). Sociologists picked-up on Weber's writings to expound on this phenomenon (Etzioni, 1964; Shils, 1965). Etzioni, in particular, did look at how this type of leadership applied to organizational settings; yet, much of this line of thinking mostly permeated the political science literature (Burns, 1978; Downton, 1973; Willner, 1984).

It was House (1977), who first proposed a detailed account of how charismatic leaders impact followers psychologically; he largely promulgated his ideas to organizational scholars. House rejected the notion that charisma was somehow a mysterious quality—a gift. For House, it was important to understand the basis of the psychological interaction that charismatic leaders have with their followers, which results from the characteristics of the leader (e.g., confidence and moral conviction), image-building efforts of the leader, and the situation in which the influencing process occurs. House’s ideas were extended to identify the mechanisms by which followers’ self-concepts are affected and on understanding the image-building techniques of charismatic leaders (House & Shamir, 1993; Shamir, Arthur, & House, 1994; Shamir, House, & Arthur, 1993). These current “neocharismatic” perspectives from the organizational sciences view charisma in more “tame” manner than do sociological ones and do not consider crisis as a requirement for the emergence of charismatic leadership (Antonakis, 2012; Antonakis, Fenley, & Liechti, 2011; Antonakis & House, 2002; House, 1977, 1999; Shamir, 1999; Shamir & Howell, 1999).

Research has identified various verbal and non-verbal techniques that leaders use to appear more charismatic (Antonakis, et al., 2011; Antonakis, Fenley, & Liechti, 2012; Den Hartog & Verburg, 1997; Frese, Beimeel, & Schoenborn, 2003; Shamir, et al., 1994; Towler, 2003). Following Antonakis and House (2002), House (1977), and Etzioni (1961), Antonakis et al. (2011, p. 376) define charisma as “symbolic leader influence rooted in emotional and ideological foundations.” Antonakis and colleagues identify nine verbal and three non-verbal “charismatic leadership tactics” (CLTs) that can be manipulated, and which predict leader emergence and other psychological outcomes (e.g., trust in leader, affect for the leader). Extending Fair’s (1978, 2009) model in predicting U.S. presidential vote-share from macroeconomic and incumbency factors, Jacquart and Antonakis (forthcoming) showed that charisma matters much particularly when economic performance outcomes associated with the incumbent (or incumbent’s party) are unclear.

The CLTs are thought to help make a message more salient by making it easier to picture and remember, and by arousing follower emotions. Jacquart and Antonakis (in press) suggest that the CLTs work via *framing* and *creating a vision*, as well as by providing *substance* to the message (see also Antonakis et al., 2011, 2012). Framing and creating a vision includes the use of: (a) metaphors: simplify the message, stir emotions, make parallels between symbolic meanings and realities salient; (b) rhetorical questions: create an intrigue and suspense and direct attention to seeking the answer; (c) stories and anecdotes: simplify the message, trigger recall, and engender identification with characters in the story and

identify a relevant moral; (d) contrasts and comparison: define what should be done versus what should not be done by turning the message into “black and white”; (e) three-part lists: give an impression of sufficient proof or completeness. Substantive statements include: (f) expressing moral conviction: focus attention on moral justification and in doing what is morally right; (g) expressing the sentiments of the collective: engenders identification (via similarity) with the leader; (h) setting high and ambitious goals: make followers feel competent and focus their effort on a target; (i) creating confidence goals can be achieved: make followers feel able to achieve the goal. Charismatic leaders also affect followers via non-verbal means to reinforce the message and convey their emotional states, including (j) body gestures, (k) facial expressions, and (l) an animated voice tone (for more details on the CLTs and examples see Antonakis, et al., 2012). Note, the verbal and non-verbal CLTs tend to correlate quite strongly ( $r = .48$ , Antonakis, et al., 2011); in addition, an index of the CLTs correlates very strongly ( $r = .78$ ) with measures of charisma derived from other methods (Jacquart & Antonakis, in press).

### **3 Design of Field Experiment**

#### **3.1 Recruitment and Procedures**

We conducted our field experiment in collaboration with the Birmingham Children’s Hospital (BCH). In November 2013 the BCH launched its yearly Christmas fund raising campaign. The purpose of this so-called “Super Santa” campaign was to collect money to help children who were not able to be at home with their families during the Christmas period. Donations would fund the purchase of gifts, the refurbishment of hospital rooms and parents’ travel and accommodation expenses, so that the children could spend Christmas with their families.

To launch the campaign the BCH required about 30’000 stuffed letters to be sent out to potential donors. We offered the hospital to prepare these letters for them. For this purpose we contracted the local branch of Adecco UK Ltd. (a large temp agency) to hire 120 temporary workers for us. Workers were recruited according to the standard procedure that Adecco uses for this type of work. In particular, the job advertisement was sent to Adecco’s usual pool of job searchers and was posted at local job centers. The advertisement mentioned that the job would consist in stuffing envelopes for 3 hours at home, that the material would have to be picked up at the Adecco office, and that each worker would be compensated for 3 hours of work plus 1.5 hours of traveling and instruction time (see Figure 1 for the original job advertisement as published on the Adecco Website). Adecco handled the sign-up

procedure and assigned applicants to different time slots so that never more than eight workers at a time would show up to collect their materials. When workers were hired, they were not informed that the job was part of a scientific study.<sup>4</sup>

[Figure 1 about here]

Each worker was required to show up twice at the Adecco office in Birmingham. On the first day workers participated (in groups of eight persons) in an instruction session of 25 minutes. An instructor explained the task in detail and each worker assembled a sample letter that he or she could later take home as a model for the letters to be completed. At the end of the instruction session each worker signed up for a time slot to return the stuffed letters on the following day<sup>5</sup> and picked up materials which would allow him or her to stuff up to 350 letters.<sup>6</sup> The materials were packed in two cardboard boxes (each of which had a weight of about 3.5 kilograms). The two boxes were placed in two separate plastic bags so that the workers could easily carry them home. Before the workers left the Adecco office, they were informed that one of the organizers of the campaign would provide them with some more information about the importance of their job. They were then given a five-minute motivation speech by a professional actor whom we had hired for this purpose.

Once the instruction session was over, workers took the material home and completed their work there. On the next day each worker returned the completed envelopes during the agreed upon time slot. A collaborator then counted the completed envelopes each worker returned.

### **3.2 Work Task**

Workers' task consisted in stuffing envelopes, returning them neatly into boxes in bundles of ten envelopes, and keeping records of printing mistakes. Stuffing an envelope included the following steps: First, the worker had to take a donation letter from a stack and examine it for printing faults. If a printing fault was detected, the letter needed to be removed and the type of

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<sup>4</sup> No deception was used at any point in time. All information provided to workers was correct and the job was real (all stuffed letters were sent out to potential donors during the fundraising campaign). In line with the requirements defined by the ethics committee of the University of Birmingham we debriefed our participants and informed them about the study after the data collection had been completed. The debriefing letter is displayed in Appendix C.

<sup>5</sup> A maximum of four people in total, and not more than one person per session, could sign up for each slot. Once a slot was full, it was taken off the list of available time slots.

<sup>6</sup> We determined the quantity of campaign material to be given to each worker with two main goals in mind. First, we wanted to ensure that the average worker would not be able to complete all the material in the boxes within the time set for the work; pilot data, which we used to finalize the quantity of material to give each worker, suggested an average productivity of 217 envelopes in three hours. Second, we did not give more material than what was possible for a person of average build to easily carry to and from their home.

printing fault had to be recorded on a list. Faultless letters had to be neatly folded and placed in a printed donation envelope. Next, the worker had to pick a code on a list and handwrite the code on a donation form. The donation form was then placed behind the letter in the donation envelope. Finally, the worker also had to insert a smaller return envelope and then seal the donation envelope.

Once ten envelopes with the same code on the donation form had been completed, the worker had to label and bundle them using a rubber band. The bundles containing ten envelopes had to be packed back into the boxes, so that the worker could return his work in good order to Adecco. In Appendix B we present photos that show all the materials and how they had to be assembled.

Obviously, we could not observe how workers completed their work at home. We do not know for how long they worked, whether they took many breaks, or whether they had help. This lack of control is not a problem for the treatment comparison that we are interested in, because the same work conditions prevailed in all conditions. Our main variables of interest are the number of completed envelopes that the workers returned to the Adecco office—irrespective of how much time they spent doing their task or whether they coopted others to help them—as well as the quality of their work. However, when workers brought back their completed envelopes, we used the waiting time to let each worker complete a short questionnaire. In this questionnaire we not only elicited information on workers' age and gender, but also asked them how much time they had spent on the task and whether they had received help from friends or family. In light of the fact that this data is self-reported and cannot be verified, it must be interpreted with caution.

### **3.3 Treatments**

This section describes the three treatment conditions that we implemented in our experiment:

#### *The baseline condition*

In the baseline condition workers received a fixed wage for their work. Specifically, we paid them the British minimum wage of GBP 6.31 for 4.5 hours (3 hours of work plus 1.5 hours of instructions and travel time). Total pay for the job therefore amounted to GBP 28.40 (see also the job ad in Figure 1).

The workers in the baseline condition were given the standard motivation speech. In the standard motivation speech we informed the workers in detail about the purpose of the donation campaign (helping children who need to spend Christmas in the hospital) and explained that their work is important and will contribute to a noble mission (the full text of

the speech and a link that allows you to watch a studio version of the speech with the original actor on video is found in Appendix A).

### *The charisma condition*

The only difference between the charisma condition and the baseline condition was that we replaced the standard motivation speech with a charismatic speech. The two speeches have the same number of words, their content is very similar and they have been designed to convey the same amount of moral conviction. However, the charisma speech relies heavily on rhetorical techniques that have been shown to increase the perceived charisma of a leader. In particular, the speech makes extensive use of the following elements: metaphors (“in a way, the letter is a ticket for a kid to attend Christmas”), stories and anecdotes (“it reminds me of a story of an old man”), contrasts (“you are not just stuffing envelopes to earn money, you are stuffing envelopes to help sickly kids too”), rhetorical questions (“what must that be like?”), three-part lists (“work hard, work smart, and think of the kids”), sentiments of the collective (“so you might think, well, I will just do what I have to—will my extra effort really help?”), confidence that goals can be achieved (“will my extra effort really help? Yes, it will!”), and non-verbal techniques (facial expressions, gestures, and voice variation). The full text of the speech plus a link to a studio-version video with the original actor is found in Appendix A.<sup>7</sup>

### *The piece rate condition*

The piece rate condition was identical to the baseline, except for the payment scheme. As in the baseline condition, the workers in the piece rate condition got the fixed amount of GBP 28.40 for the job. However, workers who completed more than the threshold of 220 envelopes received—in addition to the fixed wage—a piece rate of GBP 0.12 for each additional envelope completed.

We designed our incentive scheme based on data that we had collected in a pretest of the baseline treatment. The pretest took place about one month before the actual experiment with a sample of 16 workers. In the pretest workers in the baseline condition completed 217 envelopes on average. The British minimum wage legislation implied that we were not allowed to implement a pure performance pay scheme. We therefore adopted a piece rate with a minimum guarantee (see, e.g., Lazear 2000 for a very similar incentive scheme). Workers who performed at the average level or below earned the same salary as worker in the

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<sup>7</sup> We also have (low quality) recordings of the original speeches in the actual experimental sessions (because of a technical problem we were unable to record the speech in the very first session). These videos are available on request from the authors.

baseline condition. However, workers who stuffed more than the average number of envelopes earned a premium. We pushed the piece rate up to the point at which we expected a further increase to become unprofitable (i.e., the piece rate was set just below the estimated average cost of a letter in the baseline treatment:  $\text{GBP } 28.40 / 217 = \text{GBP } 0.13$ ).

### **3.4 Procedural Details**

We ran the experiment on three consecutive days (November 5-7, 2013). We conducted 12 instruction sessions on the first day and another 3 instruction sessions in the morning of the second day (5 sessions for each treatment). The sessions were organized in blocks of three. Within each block treatments were randomly assigned to sessions. This procedure guaranteed that the different treatments were equally distributed over the time of day. In total we invited 120 workers. Invited workers were randomly assigned to sessions. On the first day 89 of the 96 recruited workers showed up. On the second day 19 of the 24 recruited workers showed up. One person failed to return the completed envelopes and had to be excluded. In total we have therefore 106 observations (35 in the baseline condition, 30 in the piece rate condition, and 41 in the charisma condition). The average age of participating workers was 32.5 years and 55 percent were female. The workers who got their instructions on day 1 brought back their stuffed envelopes in the afternoon of day 2, the ones who were instructed in the morning of day 2 brought back their material in the morning of day 3.

When a worker returned the material, a collaborator counted the number of completed envelopes and filled out a payment slip. The material was then counted again and quality-checked; namely, the experimenter examined whether bundles and boxes were neatly packed, and drew three sample envelopes to check whether they were stuffed according to the instructions. The experimenter recorded the result of all these checks, so as to construct an index of quality that will be used in the empirical analysis. The payment of the workers was entirely handled by Adecco.

About a week after the data collection had been finished the workers received a debriefing letter in the mail. In the debriefing letter we explained the nature of the experiment and offered the workers the possibility to contact the authors if they were interested in the results of the study (a copy of the debriefing letter is found in Appendix C).

## **4 Effects of Incentives and Charisma on Performance: An Ad-Hoc Model**

In this section we present a simple model that produces a set of empirically testable hypotheses. The model is not meant to be a deep theoretical contribution, but rather represents

an ad-hoc exercise that helps to structure our thoughts and clarifies how we think about the effects that charisma might have on performance.

We assume that a worker's utility function is given as follows:

$$U = s + i(x,c) - k(x),$$

where  $s$  is the worker's salary,  $i$  is the intrinsic satisfaction that the worker derives from producing output  $x$ ,  $c$  is the leader's charisma as perceived by the worker, and  $k$  is the effort cost of producing output.

The idea behind the worker's intrinsic satisfaction is that people receive utility if they feel that the work they do helps others (the "warm-glow" effect, see Andreoni 1989, 1990). In our field experiment each worker stuffs envelopes that are used to solicit donations for the Birmingham Children hospital. Thus, the more letters a worker stuffs, the more money can be collected to help the children, and the better the worker feels about his work ( $\partial i/\partial x > 0$  and  $\partial^2 i/\partial x^2 < 0$ ). However, the intensity of the worker's warm-glow utility not only depends on his output, but also on his perception of the job itself. We assume that this perception is shaped by the leader who introduces the job to the worker. The more charismatic the leader is, the more the worker cares about the job, and the more he or she intrinsically benefits from working harder ( $\partial i/\partial c > 0$  and  $\partial^2 i/\partial x \partial c > 0$ ).<sup>8</sup> For analytical convenience we also assume that the function  $i$  fulfills the Inada conditions ( $\lim_{x \rightarrow 0} \partial i/\partial x = \infty$  and  $\lim_{x \rightarrow \infty} \partial i/\partial x = 0$ ). The cost function  $k$  is a standard convex effort cost function ( $\partial k/\partial x > 0$ ,  $\partial^2 k/\partial x^2 > 0$ ,  $\lim_{x \rightarrow 0} \partial k/\partial x = 0$ , and  $\lim_{x \rightarrow \infty} \partial i/\partial x = \infty$ ).

The slope of an indifference curve in the salary-output space is given as follows:

$$\partial s/\partial x = \partial k/\partial x - \partial i/\partial x.$$

Our assumptions on  $i$  and  $k$  imply that this slope is negative for low levels of output (because initially the increase in intrinsic satisfaction from additional output dominates the cost increase) and positive for high levels of output (because the cost increase becomes dominant).

[Figure 2 about here]

Figure 2 shows examples of indifference curves in the salary-output space for both low (green lines) and high (red lines) charisma of the worker's leader. The figure also includes illustrations of the sets of points that the worker can actually reach in the different

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<sup>8</sup> See Kvaløy and Schöttner (2015) for a related assumption. In their model the principal can exert "motivational effort" that reduces the worker's marginal cost of effort.

treatment conditions. In the baseline condition and the charisma condition the salary corresponds to the fixed wage  $w$ , so that the set of reachable points consists of a flat line (blue line). In the piece rate condition the set of reachable points includes a kink (kinked blue line), because the worker's salary starts to increase once the worker has surpassed a threshold  $t$  ( $s = w + p(x - t)$ , where  $p$  is the piece rate). Finally, the figure also displays a utility-maximizing worker's optimal choices for each of the three treatments. The worker's aim is to reach the highest indifference curve possible. In the baseline condition the utility maximizing output choice is  $x_B$ . The corresponding levels in the charisma condition and the piece rate condition are  $x_C$  and  $x_P$ .

The figure illustrates our two main hypotheses:

***Hypothesis 1:***

*The output in the piece rate condition is higher than the output in the baseline condition.*

The intuition behind the positive effect of incentives is simple: the introduction of the piece rate allows the worker to reach salary-output combinations that are not available under the fixed wage. If the marginal cost of effort ( $\partial k/\partial x$ ) is not yet too high when the worker's output equalizes the threshold ( $x = t$ ), the worker can increase his or her utility by increasing output to a level above the threshold (the additional income more than compensates the increase in the cost of effort). Obviously, it is possible that there are workers for whom the piece rate has no effect. If the marginal cost of effort is already very high at the threshold, the indifference curves are very steep and the workers will be unable to increase their utility by working harder. However, because our pretest with a fixed wage indicated that there would be workers who surpass the threshold (220 envelopes) even in the absence of performance pay, we hypothesized that there would be at least some workers whose performance would be positively affected by the piece rate.

***Hypothesis 2:***

*The output in the charisma condition is higher than the output in the baseline condition.*

The charisma effect is a direct consequence of our assumption that the perceived charisma of the leader increases the marginal intrinsic satisfaction from working harder on the job ( $\partial^2 i/\partial x \partial c > 0$ ). The positive cross derivation flattens the indifference curves (the salary increase necessary to keep the worker's utility constant when he works harder gets smaller) so that the worker's optimal output level increases.

The theory does not make direct predictions regarding the comparison of effect sizes for charisma and incentives, because this comparison depends on the incentive intensity, the leader's level of charisma, and the functional forms of  $i$  and  $k$ . To make the comparison of effect sizes in the two treatments empirically and practically interesting, we implemented the highest piece rate that still makes business sense in our environment. In other words we aimed at setting the piece rate such that the average cost per letter would remain roughly constant. Picking a higher piece rate might have further increased output, but because it would almost certainly have increased the cost per letter relative to the baseline treatment, such a compensation policy would not have been profitable. In this sense we are testing the effect of our charisma manipulation relative to the largest performance effect that can be obtained using piece rates without losing money.

## **5 Manipulation checks**

### **5.1 Objective manipulation check**

Two expert coders, who had previously achieved very strong inter-rater reliability on training materials, independently coded each speech on the CLTs (Antonakis, et al., 2011). They coded for the absolute presence or absence of each of the nine verbal techniques at the sentence level. The first instance of a CLT was coded in the case of CLTs spanning several sentences; thus, they looked for CLTs that might span over several sentences, for example a second sentence could be a contrast following from the first sentence, or a list could be constructed over three consecutive sentences (see also Appendix E for more details).

Note, the coders were blinded to the purpose of the experiment at least initially; one coder did the non-charismatic speech and the second did the charismatic speech. Once complete with the first speech, each coder then coded the second speech; at this point, the coders probably understood the purpose of the experiment. However, strong agreement between the coders would indicate very little bias in their ratings. We thus checked for inter-coder reliability. For the non-charismatic speech ( $n = 41$  sentences), the coders agreed on 97.02% of the 369 coding events (i.e., 41 sentences \* 9 categories). This level of agreement can be tested against chance agreement. Results showed that agreement was substantial (Landis and Koch, 1977:  $\kappa = .63$ ,  $se = .05$ ,  $z = 12.28$ ,  $p < .001$ ). We found similar results for the charismatic speech ( $n = 48$  sentences) with 95.60% agreement over 432 coding events ( $\kappa = .74$ ,  $se = .05$ ,  $z = 15.44$ ,  $p < .001$ ). After having coded the speeches, the coders then reconciled their codings on both speeches until reaching agreement. The number of

charismatic leadership tactics used as a proportion of total sentences in the non-charismatic speech was 39.02% (i.e., 16 tactics over 41 sentences); that of the charismatic speech was 91.67% (i.e., 44 tactics over 48 sentences). This difference in proportions was highly significant ( $z = 5.28$ ,  $se = .10$ ,  $p < .001$ , (Koopman, 1984)).<sup>9</sup>

Turning to the three nonverbal tactics, the coders fully agreed that in the charismatic speech, the actor demonstrated appropriate facial expressions, body language, and used his voice rhythmically, with good variation and pauses, as well as crescendos. For the non-charismatic speech the coders were again in full agreement that, on an absolute level, the actor appropriately used facial expression and his voice. As for the specific use of non-verbal behavior, the first coder coded 16 and 13 respective instances of use of appropriate facial expressions and body language in the non-charismatic speech; the second coder coded 10 and 11 instances (thus the mean is 13 and 12 respectively). For the charismatic speech the codings were 75 and 81 (first coder), and 71 and 74 (second coder), for a mean of 73 and 77 (rounded down). The difference in occurrences between the total instances of non-verbal facial and body language non-behavior in the two conditions (i.e., 25 vs. 150) was highly significant ( $\chi^2(1) = 89.29$ ,  $p < .001$ ).

It is important to highlight that the non-charismatic speech was still, in absolute terms, a relatively solid speech with good use of rhetorical techniques; it was not completely flat in its delivery, with good use of facial gestures and voice, though with a more subdued delivery in the use of body language. Given the charitable context in which the work was conducted, we held moral conviction constant across the two speeches (the non-charismatic speech had 9 whereas the charismatic speech had 10 instances of moral conviction).

## **5.2 Subjective manipulation check**

Although the first check is arguably sufficient, we used a second, “external” manipulation check to ensure that the manipulations were ecologically valid as perceived by “normal” subjects; we used outside participants and not the workers in the field experiment for this check so as to not make salient the nature of the manipulation. Thus, it was important to ensure that individuals exposed to the speech saw it as more or less charismatic as a function of the manipulations. Consequently, we recruited 57 students from the University of Birmingham (situated in the same city in which we held the field experiment), whom we randomly assigned to watch a studio filmed video of the standard (non-charismatic,  $n = 27$ ) or the charismatic ( $n = 30$ ) speech.

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<sup>9</sup> See Appendix E for the coded results for both speeches.

After having watched the speech we asked the participants to rate the target on a series of items, on 0 to 4 point scale to gauge their impressions of leadership style of the target. We used the General Leadership Impression (GLI) questionnaire, which tapped into how prototypical the leader seemed to the participants (Cronshaw & Lord, 1987). We also used the Multifactor Leadership Questionnaire, to measure idealized influence attributes and idealized influence behaviors as well as inspirational motivation (Antonakis, Avolio, & Sivasubramaniam, 2003). The idealized influence factors concern the moral conviction, ideals, values and beliefs, and confidence of the leader; inspirational motivation concerns whether the leader is visionary, energetic and optimistic. Given the nature of our manipulation and the fact that we held constant the moral conviction component of the speeches, we expected significant differences only on the GLI and on inspirational motivation.<sup>10</sup>

We used a maximum likelihood estimator with a small sample size adjustment and robust standard errors to simultaneously regress the leadership factors on the manipulated variable, while allowing the disturbances of the dependent variables to be correlated. Refer to Table 1 for results, which show that no significant difference for idealized influence attributes and behaviors either individually or jointly across the two equations ( $\chi^2(2) = 2.15, p > .10$ ). However, results for inspirational motivation and the GLI are significant both individually and jointly across the two equations ( $\chi^2(2) = 20.67, p > .10$ ). Also the linear combination of the two idealized influence coefficients is significantly lower than that of inspirational motivation and GLI (i.e.,  $\text{lincomb}_1 - \text{lincomb}_2 = 1.07, SE = .32, z = 3.40, p < 0.001$ ). These results strongly suggest that the manipulations had their intended effects.

[Table about 1 here]

## 6 Results

In this section we present the results of our field experiment. In the first part we provide an overview of our results based on descriptive statistics. In the second part we use regression analysis to illustrate the significance of our results.

### 6.1 Descriptive statistics

Table 2 summarizes our findings in the form of descriptive statistics. The table shows that workers in the baseline condition return on average 230.9 completed envelopes. This yields an average cost per letter of GBP 0.123 (GBP 28.4 / 230.9). Both the piece rate treatment and the

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<sup>10</sup> Appendix D contains the instructions for participants and the full list of items used in the subjective manipulation check.

charisma treatment succeed in substantially increasing the number of stuffed envelopes returned by the workers. In the piece rate condition workers return on average 277.7 letters. This corresponds to an increase in average output of 20.2% relative to the baseline condition. However, because workers who complete more than 220 envelopes receive a piece rate of GBP 0.12 for each additional envelope, the workers average earnings increase from GBP 28.4 to GBP 37.2. As a consequence, the average cost per letter increases somewhat to GBP 0.134 (i.e. an increase of 8.8% relative to the baseline). Non-parametric ranksum tests indicate that the increase in performance is statistically significant ( $p = 0.025$ ), while the increase in the cost per letter is not ( $p = 0.969$ ).<sup>11</sup>

[Table 2 about here!]

Performance in the charisma treatment is very similar to the one in the piece rate treatment. On average, workers return 271.2 letters in this condition. A non-parametric ranksum test reveals that this performance level is not statistically different from the one in the piece rate condition ( $p = 0.802$ ). Relative to the baseline condition, performance in the charisma treatment is 17.4% higher. Because earnings were unaffected by the charisma manipulation, the higher number of completed letters per workers also results in a substantial reduction of the cost per letter. In the charisma condition the average cost per letter amounts to GBP 0.105, which corresponds to a cost decrease of 14.8% relative to the baseline condition. Non-parametric ranksum tests indicate that both the increase in performance as well as the decrease in the cost per letter are statistically significant ( $p = 0.017$  for both tests).<sup>12</sup>

Figure 3 summarizes the main effects of our treatment conditions graphically. Panel A shows the effects on the average number of letters completed, and Panel B displays the effects on the average cost per letter. Figure 4 reports the distributions of the number of letters stuffed across treatments.

[Figure 3 about here!]

As mentioned in section 3.4 we not only recorded the number of completed envelopes, but we also performed quality checks. In particular, for each worker we randomly drew three envelopes and checked whether the material in the envelope was complete and in the right order, whether the handwritten code on the donation form was correct, and whether the letter

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<sup>11</sup> The ranksum tests are performed using worker level data as independent observations.

<sup>12</sup> Since earnings are constant across workers, the cost per letter is only a transformation of the performance variable. As a consequence, the test statistics must be identical.

was neatly folded and free of printing faults. In addition, we also controlled whether the returned envelope bundles were nicely assembled (no corners bent), consistently labeled, and correctly secured with rubber bands. Finally, we recorded whether the envelope bundles were returned in the designated boxes and whether they were neatly arranged. Overall, our quality inspection yields a series of 20 check items each of which was judged as either a PASS or a FAIL. Out of these 20 items we generate two simple quality measures. The first measure is a simple index that calculates the relative frequency of passed items. The second measure is an indicator variable for perfect quality, i.e., the variable is unity if all 20 items have been passed and zero otherwise.<sup>13</sup>

[Figure 4 about here!]

Table 2 shows that workers performed their work quite carefully in all three conditions. In the baseline conditions workers passed on average 87% of the quality items. In the piece rate condition and the charisma condition the corresponding numbers are 88% and 89%, respectively. Non-parametric ranksum tests indicate that there are no statistically significant differences across treatments (baseline vs. piece rates:  $p = 0.592$ , baseline vs. charisma:  $p = 0.463$ , piece rates vs. charisma:  $p = 0.900$ ). Samples of perfect quality were somewhat more frequent in the piece rate condition (31%) and the charisma condition (30%) than in the baseline condition (22%). However, none of these differences is statistically significant either (baseline vs. piece rates:  $p = 0.421$ , baseline vs. charisma:  $p = 0.462$ , piece rates vs. charisma:  $p = 0.910$ ). These findings imply that the increase in completed letters observed in the piece rate condition and charisma condition did not come at the cost of decreased quality. If anything, the quality of the completed letters seems to be slightly higher in the two treatment conditions than in the baseline condition.

Table 2 also displays the worker's self-reported information regarding time spent on the task and whether they had help from friends or family. According to these data workers in the piece rate and charisma treatments worked about 20 minutes longer than workers in the baseline treatment and were also somewhat more likely to have had help from friends or family. However, neither of these differences is statistically significant (non-parametric ranksum tests for time spent on task: baseline vs. piece rates:  $p = 0.184$ , baseline vs. charisma:  $p = 0.613$ , piece rates vs. charisma:  $p = 0.449$  / Fisher's exact test for help from friends or family:  $p = 0.741$ ). These findings seem to indicate that the performance increase that we

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<sup>13</sup> As a consequence of a coordination problem we failed to collect the quality information for 8 of our 106 participants. We therefore have 3 missing observations in the baseline condition, 1 missing observation in the piece rate condition, and 4 missing observations in the charisma condition.

observe in the piece rate and charisma treatments is not predominantly driven by longer work hours or additional help. It rather seems that workers in those treatments were more effective when working on the task.

## 6.2 Regression Analysis

Table 3 reports the results of a series of regression estimations in which we further explore the statistical significance of the treatment effects reported above. Column (1) is an OLS estimation in which we regress the number of completed letters per worker on indicator variables for the piece rate condition and the charisma condition. The constant corresponds to the average number of completed envelopes in the baseline condition, whereas the indicator variables capture the corresponding increase in each of our two treatment conditions separately. The estimation results show that both the treatment effect of piece rates ( $p = 0.026$ ) and the treatment effect of charisma ( $p = 0.040$ ) are statistically significant. An F-test confirms that there is no significant difference between the two treatment effects ( $p = 0.671$ ). Column (2) performs the same estimation using a Tobit model with censoring at 350 letters. This regression accounts for the fact that workers could not complete more than 350 letters. Because two workers (both in the charisma condition) completed the full 350 envelopes, the estimation results do not change much—the treatment effect of the charisma condition increases slightly and becomes more significant ( $p = 0.032$ ). The difference between the piece rate and the charisma treatments still remains insignificant ( $p = 0.826$ ).

In Column (3) we perform an OLS estimation in which we regress the cost per letter (measured at the worker level) on indicator variables for the piece rate condition and the charisma condition. The regression reveals that the cost reduction observed in the charisma condition is statistically significant ( $p = 0.048$ ), whereas the small cost increase observed in the piece rate condition is not ( $p = 0.760$ ). Again, using a Tobit estimation instead of an OLS regression leaves the results largely unchanged (see Column (4): the cost reduction triggered by charisma goes slightly up and becomes more significant,  $p = 0.037$ ).<sup>14</sup>

[Table 3 about here]

Columns (5) and (6) show estimations in which we regress our quality measures on indicator variables for the piece rate condition and the charisma condition (OLS estimations). Column (5) uses the quality index as the dependent variable, whereas Column (6) uses the indicator variable for perfect quality. Both estimations show that neither the piece rate

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<sup>14</sup> The coefficients of the charisma and piece rate conditions are significantly different in both regressions (Column(3), OLS:  $p = 0.047$ ; Column (4), Tobit:  $p = 0.039$ ).

treatment nor the charisma treatment has a significant effect on the quality of the completed envelopes.

In Table 4 we make use of the additional data collected in a questionnaire that workers completed when they brought back their materials on the second day of the field experiment. Since these variables are self-reported, these results need to be interpreted with caution, but we find it nevertheless informative to report them. Columns (1) and (2) add workers' age and gender as control variables to the estimation in which we regress the number of completed letters per worker on indicator variables for the piece rate condition and the charisma condition. The treatment effect of the piece rate condition remains almost unchanged and remains highly significant ( $p = 0.035$ ). The treatment effect of the charisma condition is slightly lower, but also this effect remains significant ( $p = 0.071$ ). Thus, using age and gender to control for possible imperfections in randomization across treatments, leaves the pattern of our main results largely unchanged.

Columns (3) to (6) confirm that neither the time spent on the task nor the frequency with which workers get help from friends or family is significantly affected by our treatment manipulations. These results hold independently of whether the estimation controls for age and gender or not.

## **7 Conclusion**

In this paper we report the results of a field experiment in which workers are exposed to speeches that differ in the number of charismatic elements, as well as to varying financial incentives. Our evidence shows that exposing workers to a charismatic motivation speech can have a similarly positive effect on performance as providing them with output-based, financial incentives. The idea that leaders can use rhetorical tools and charismatic techniques to motivate workers is widely discussed in the management literature. However, even though there are several studies showing that charismatic speeches affect followers' perception of a person's leadership abilities, there is very little evidence for positive effects of a leader's charisma on follower's actual performance. Our study makes a first step towards filling this gap.

We see this paper as the starting point for a whole new research agenda. Our study shows that there are economically relevant environments in which charismatic tactics are a powerful leadership tool. However, many important questions remain. One limitation of our current work is that our field experiment does not allow identifying the channels through which charisma operates. In section 4 we propose a simple theoretical framework that relies

on the assumption that a leader's charisma has a direct impact on preferences, in the sense that it increases workers' intrinsic motivation. Alternatively, however, it is also possible that charisma affects behavior by shaping workers' beliefs about the extent to which the leader cares about the project, the importance of the job in general, or the leader's performance expectations. Because we have not elicited worker' beliefs in our field experiment we cannot disentangle these different channels. Another limitation is that we manipulated charisma by changing a number of tactics at the same time. As a consequence, we cannot determine whether some of the tactics work better than others and how they interact with each other. In future studies we plan to use carefully designed laboratory experiments to address both these points. In the laboratory, eliciting participants' beliefs is straightforward and we can implement a large number of conditions which differ in only one dimension. We trust that these experiments will provide us with novel insights on how to best integrate the charisma concept in economic models.

Furthermore, it is of great importance to examine the robustness of our results in several dimensions. A first point of interest is the duration of the work relationship. In the field experiment discussed in this paper our workers had to perform a simple and short task. We do not know whether and to what extent our results generalize to environments in which the work task is more complex and longer-lasting. For future studies we therefore aim at finding other field environments in which we can observe workers' behavior for a much longer time. This would allow us to study the degree to which the charisma effect fades out over time and to study different methods that allow the leader to keep up the motivational effect in the long term. Another relevant aspect is the nature of the task. In this study we focused on an environment in which the moral aspect played a very important role (the work task aims at helping sick children in a hospital). It would be interesting to see whether charisma still has the same effect if workers perform a task for which the moral dimension is less salient. We plan to address this point in a modified version of our field experiment (e.g., by letting workers stuff envelopes with advertisement materials for a morally neutral product).

Finally, it is well known that explicit incentives may have unwanted effects in certain environments. For instance, in complex, multi-task settings in which some dimension of performance are hard to measure, simple pay-for-performance contracts may induce distorted attention and/or unproductive activities (Holmström and Milgrom 1991, Baker 1992). Similarly, it has also been found that output-based pay can be harmful for performance if the worker's task requires creativity (Baer, Oldham, and Cunnings 2003; Byron and Khazanchi 2012). So far, economists have had difficulties to propose successful motivation procedures in

those situations. Charismatic leadership might be a possible solution to this problem. To systematically study this, it would be interesting to implement a version of our experiment in an environment in which incentives are unlikely to work well.

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Table 1: Subjective manipulation check

Dependent Variable	Idealized influence (attr.)	Idealized influence (beh.)	Inspirational Motivation	Gen. leadership impression
	(1)	(2)	(3)	(4)
Charisma	0.23 (1.22)	0.03 (0.17)	.90*** (4.29)	.43** (2.00)
Constant	2.71*** (21.76)	3.04*** (23.72)	2.25*** (12.99)	2.41*** (14.45)
Observations	57	57	57	57

Notes: Robust z-statistics in parentheses; \*\*\* p<0.01, \*\* p<0.05.

Table 2: Descriptive Statistics

Treatment	Baseline	Piece Rate	Charisma
Average earnings of workers (in GBP)	28.4	37.2	28.4
Av. number of letters completed	230.94	277.70	271.22
Standard deviation	86.66	79.99	80.76
Max. number of letters completed	340	349	350
Min. number of letters completed	90	60	100
25th percentile	150	250	200
Median number of letters completed	210	317	320
75th percentile	320	330	337
Av. quality index	0.87	0.88	0.89
Rel. freq. of perfect quality	0.22	0.31	0.30
Av. cost per letter completed (in GBP)	0.123	0.134	0.105
Av. time spent on the task (in minutes)	245	267	263
Standard deviation	64.57	68.4	97.78
Max. time spent on the task	370	480	480
Min. time spent on the task	150	160	60
Median time spent on the task	240	270	240
Rel. freq. of help from friends or family	0.12	0.19	0.18
Average age of workers (in years)	32.2	32.6	32.6
Percentage of female workers	0.45	0.57	0.61

Notes: The table provides descriptive statistics for relevant variables of our field experiment. In the baseline and the charisma treatments the workers' wage is fixed to GBP 28.4 (this corresponds to 4.5 times the hourly minimum wage). In the piece rate condition workers who completed more than 220 envelopes received GBP 0.12 for each additional envelope. Workers had received the materials to complete a maximum of 350 letters. The quality index contains 20 items (see section 6.1 for details). Perfect quality is unity if all 20 items of the quality index have been passed and zero otherwise. The average cost per letter has been calculated at the treatment level (i.e., the number reported corresponds to the sum of worker earnings divided by the sum of letters completed by all workers in a treatment). The time spent on the task and the availability of help from friends or family are variables that have been self-reported by workers and could therefore not be verified.

Table 3: Regression Analysis of Treatment Effects

Dependent variable	Letters completed	Letters completed	Cost per letter	Cost per letter	Quality index	Perfect quality
Estimation	OLS	Tobit	OLS	Tobit	OLS	OLS
	(1)	(2)	(4)	(5)	(1)	(2)
Piece rate	46.757** (20.656)	46.757** (20.456)	0.006 (0.018)	0.006 (0.018)	0.014 (0.032)	0.092 (0.115)
Charisma	40.277** (19.346)	42.450** (19.502)	-0.028** (0.014)	-0.030** (0.014)	0.026 (0.028)	0.079 (0.106)
Constant	230.943*** (14.647)	230.943*** (14.505)	0.146*** (0.011)	0.146*** (0.011)	0.869*** (0.022)	0.219*** (0.074)
Observations	106	106	106	106	98	98
R-squared	0.059		0.051		0.009	0.008

Notes: In columns (1) and (2) the dependent variable is the number of letters completed at the worker level. In columns (3) and (4) the dependent variable is the cost per letter measured at the worker level. The constant in column (3) does not correspond to the average cost per letter for the baseline treatment reported in Table 2. The reason is that in Table 2 the cost per letter has been calculated at the treatment level (see the notes to Table 2 for more details). The dependent variable in column (5) is an index that measures the fraction of passed items in a set of 20 quality checks at the worker level. The dependent variable in column (6) is unity if all 20 quality checks have been passed and zero otherwise. Because of a coordination problem we have failed to collect the quality information for 8 workers, which explains why we have only 98 observations in columns (5) and (6). Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05.

Table 4: Regression Analysis of Treatment Effects

Dependent variable	Letters completed	Cost per letter	Time spent on task	Time spent on task	Help from friends/fam.	Help from friends/fam.
Estimation	OLS	OLS	OLS	OLS	OLS	OLS
	(1)	(2)	(3)	(4)	(5)	(6)
Piece rate	45.373** (21.257)	0.007 (0.020)	21.611 (17.569)	23.741 (18.219)	0.071 (0.097)	0.085 (0.097)
Charisma	36.836* (20.165)	-0.025* (0.015)	17.788 (19.251)	13.349 (19.192)	0.058 (0.085)	0.079 (0.086)
Age	0.796 (0.567)	-0.001* (0.000)		1.385** (0.628)		-0.000 (0.004)
Female	9.490 (17.129)	-0.008 (0.014)		-2.739 (17.234)		-0.107 (0.084)
Constant	200.977*** (24.421)	0.171*** (0.018)	245.313*** (11.411)	202.137*** (21.855)	0.121** (0.058)	0.185 (0.158)
Observations	105	105	98	97	98	97
R-squared	0.073	0.064	0.013	0.062	0.007	0.027

Notes: In column (1) the dependent variable is the number of letters completed at the worker level. In column (2) the dependent variable is the cost per letter measured at the worker level. These regressions control for the age and gender of the workers. We lose one observation, because one of the workers did not complete the section on age and gender in the questionnaire. The dependent variable in columns (3) and (4) is the time spent on the task self-reported by the worker. The dependent variable in columns (5) and (6) is an indicator variable of whether the worker had help from friends or family. For both variables we report uncontrolled treatment effects and estimations controlling for age and gender. We lose another 8 observations in these regressions, because some workers did not fill in the section of the questionnaire that contained the questions on the work task. Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \*p<0.10.

Figure 1: Job Ad used in the Recruitment Process

**Job details: Mail Sorter**

Location: **Birmingham, West Midlands**  
Category: **Sales & Retail**  
Reference: **TM ad**  
Posted: **25 October 2013**

Earn £28.40 for just 3 hours work...!!!  
(the payment includes a compensation for 1 hour travel time and 30 minutes of training)

We are helping Birmingham Children's Hospital in a postal campaign.

Can you spare 3 hours of your time stuffing envelopes?

All that is required from you is that you collect two boxes with your materials from Adecco Birmingham on Tuesday 5th November and return your filled envelopes & unused materials on Wednesday 6th November.

We will provide you with detailed instructions on how to complete the work (please reserve 30 minutes for this training). Then you can take the material with you and work at home.

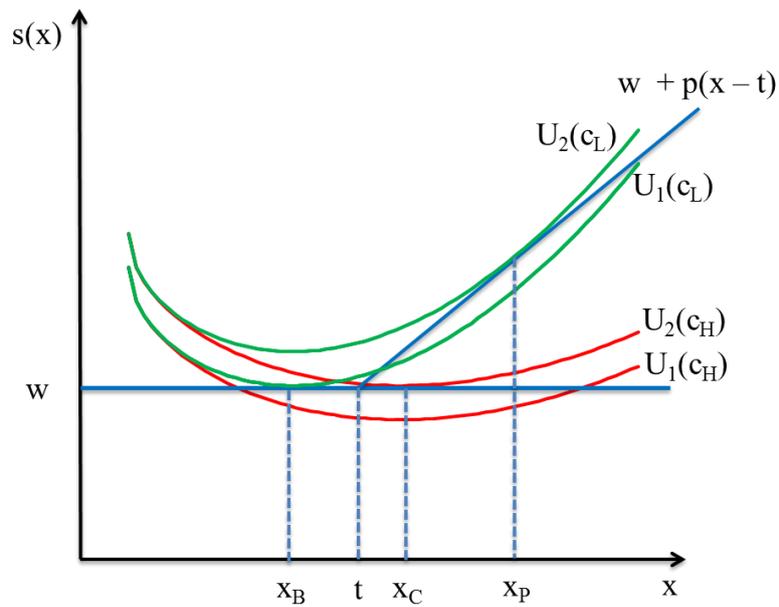
Please assist us in supporting Birmingham Children's Hospital in this worthwhile campaign.

Please contact [REDACTED] for details.

Adecco are an equal opportunity employer.

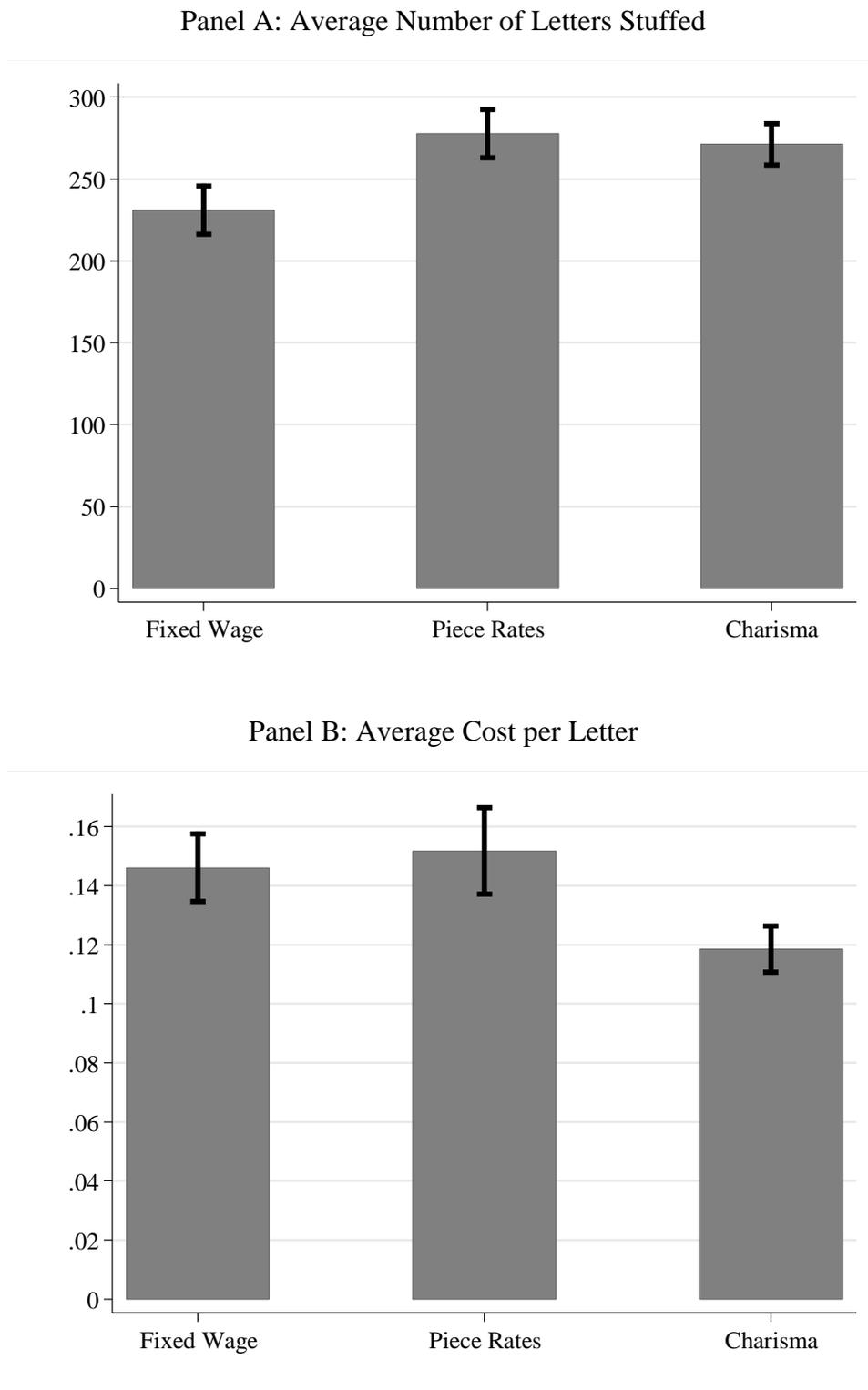
Notes: This figure displays the original job ad as shown on the Adecco webpage.

Figure 2: Model Predictions – Effects of a Piece Rate and Charisma



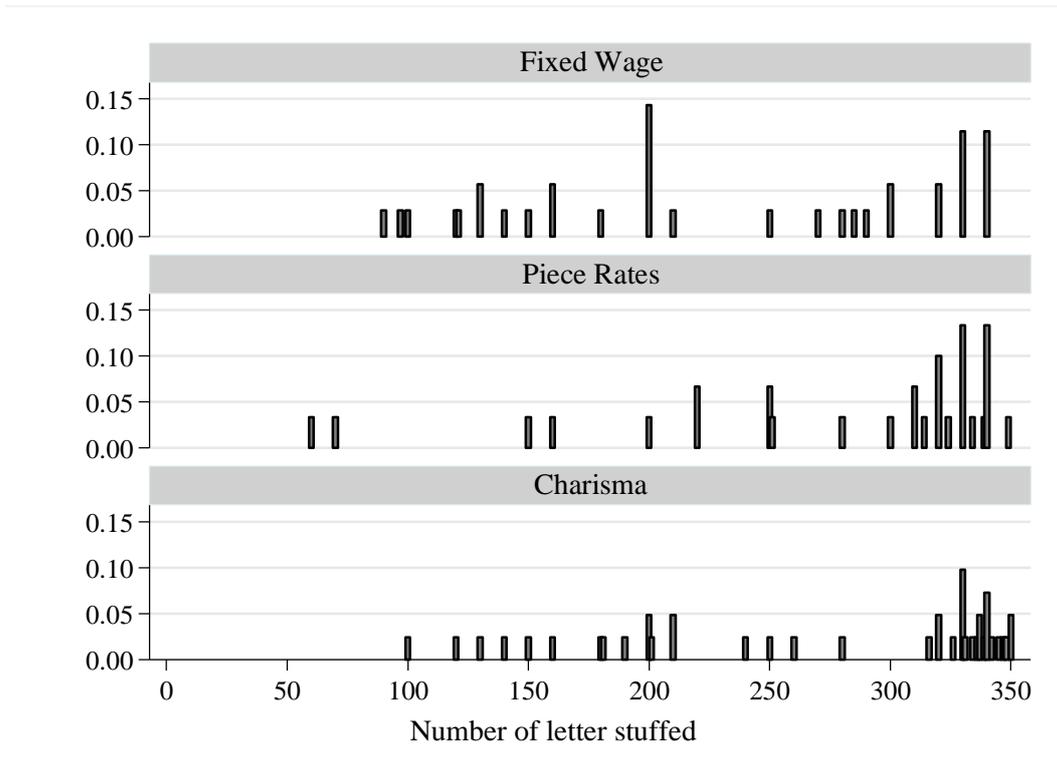
Notes: The figure shows examples of indifference curves in the salary-output space for both low (green lines) and high (red lines) charisma of the worker's leader. In the baseline condition and the charisma condition the salary corresponds to the fixed wage  $w$ , so that the set of reachable points consists of a flat line. In the piece rate condition the set of reachable points includes a kink, because the wage increases if the worker surpasses a threshold  $t$  ( $s = w + p(x - t)$ , where  $p$  is the piece rate). The figure displays a utility-maximizing worker's optimal choices for each of the three treatments. In the baseline condition the utility maximizing output choice is  $x_B$ . The corresponding levels in the charisma condition and the piece rate condition are  $x_C$  and  $x_P$ .

Figure 3: Number of Letters Stuffed and Cost per Letter across Treatments



Notes: The figures displays the average number of letters completed (Panel A) as well as the average cost per letter (Panel B) across treatments. The capped bars represent the standard error of the mean. The average cost per letter has been calculated at the worker level before averaging across workers. The displayed levels therefore correspond to the values reported in Table 3 rather than the values reported in Table 2.

Figure 4: Distribution of Number of Letters Stuffed across Treatments



Notes: The figures shows the distributions of the number of completed letters across our three treatments.

## **Appendix A: Full text of speeches**

To view studio versions of the two speeches refer to the following web-link:

[www.hec.unil.ch/jantonakis/charisma.htm](http://www.hec.unil.ch/jantonakis/charisma.htm)

### **Standard speech:**

Hi: My name is Mike and I am working with the team that has hired you. My main task is to brief you on the importance of what you are going to do; but, in my spare time I will be stuffing envelopes too, along with my colleague Giovanna. In the next couple of minutes though, I just want to explain to you the nature of the fundraising campaign and to give you an overview of the task ahead.

Of course, you are here to stuff envelopes and earn some money. That is clear. At the same time your efforts will also help Birmingham's hospital charity achieve what is a noble mission, which is to help children who are sick with all kinds of serious illness. Therefore, the job you are doing is really important to help some children.

You will help children because the letters you have are written to convince a potential donor to help the charity. Each letter can potentially help a child have a nice Christmas. Let me tell you why. Many gravely sick children will spend Christmas in hospital. This is obviously not a nice state of affairs for the children and their families. Thus, the charity will help families who cannot afford to be near their children during the Christmas period. They will help the families in a number of ways, for example, by paying for parental accommodation or by providing a nicely decorated room so that the families can open their Christmas presents in a pleasant environment. They can also help provide a playroom and toys for the children.

Every envelope you stuff with a letter will make a difference because it is only through reaching potential donors that we can raise money. So, I want you to be very professional when you are doing your job so that you can better help the children.

Of course, you will be paid regardless of how many envelopes you stuff. However, the more you do, the better; the more envelopes you stuff the more money we can potentially raise for them.

Next, please follow the instructions you have been given, fold the letters and seal the envelopes neatly and maintain correct records. Printing this many letters sometimes produces printing faults. So, scan the letters quickly to ensure that they are clean. We don't want to turn away donors by sending them bad letters. A bad letter might not help raise money.

Also, please think of the children when you do your job because every letter can potentially help a child.

So you might think, well, I will just do what I have to—my extra effort won't really help. Yes, your extra effort will help! Just think of how many of you are in this room and all the other people we have hired to do this task as well. Every letter helps. The more letters you can do for us, the more letters we have to send out in our fundraising drive. This of course means that the more donors we can potentially reach and the more you can potentially help the charity. At the end of the day, we may be able to make a much bigger difference to these sick children, which is really what matters most of all. So please do your best by doing your job as well as you can, to the best of your ability. Doing so will really help make a difference to the children. Of course, this will help you to earn some extra money too, so we all winning here.

Remember, each letter is important: The more letters we send out the better. So do work as hard as you can and do work as precisely as you can. That all's I have to say: Please do the best that you can because in this way we can all better help the charity.

Thank you for listening to me. I'll let Giovanna conclude the briefing. Thank you.

### **Charismatic Speech:**

Hi: My name is Mike and I am working with the team that has hired you. My main task is to brief you on the importance of what you are going to do; but, in my spare time I will be stuffing envelopes too, along with my colleague Giovanna. In the next couple of minutes though, I just want to explain to you the nature of the fundraising campaign. So, why are you here?

Some of you may think you are here just to stuff envelopes to earn a few quid. However, by being here you are going to do something special by helping Birmingham's hospital charity achieve its mission; and, this is a noble mission. Your efforts will make a difference to sick children: Children with cancer, children with leukaemia, and children with all sorts of serious illnesses. This is something worth doing; I think it is a right thing to do.

Just how are you going to do something special? Well, the letters you have are written to convince a potential donor to help the charity. In a way, the letter is a ticket for a child to attend Christmas. Let me tell you why. Many gravely sick children will spend Christmas in hospital. What must that be like? For the parent? The child? The family? The charity will help families who cannot afford to be near their children during the Christmas period. They will help them by paying for the parents' accommodation in or near the hospital, by providing a

nicely decorated room so that the families can open their Christmas presents in a cosy environment, by providing a playroom and toys for the children.

Every envelope you stuff with a letter will make a difference because it is only through reaching potential donors that we can raise money. So, I want you to do three things to give the kids a ticket to Christmas: work hard, work smart, and think of the kids you will help.

First: Work hard. You will be paid regardless of how many envelopes you stuff. However, the more you do, the better; the more envelopes you stuff the more money we can potentially raise.

Second: Work smart. Follow the instructions you have been given, fold the letters and seal the envelopes neatly and maintain correct records. Printing this many letters sometimes produces printing faults. So, scan the letters quickly to ensure that they are clean. We don't want to turn away donors by sending them bad letters. A bad letter is a bad ticket.

Third: Think of the kids when you do your job. You are not just stuffing envelopes to earn money. You are stuffing envelopes to help sickly kids too.

So you might think, well, I will just do what I have to—will my extra effort really help? Yes, it will! This reminds me of story about an old man who while walking along the seashore noticed a girl picking up starfish and throwing them into the sea. The old man approached her saying: “what are you doing?” She replied: “I am throwing starfish into the sea, because the sun is coming up and the starfish will die.” “But,” said the man, “there are thousands of starfish, the sun is high, and the tide is going out. How can you possibly make a difference?” The girl bent down, picked up a starfish, threw it into the sea and said: “well, I made a difference to that one.”

Remember, every letter is a ticket for a child to attend Christmas: the more tickets we issue, the better. Work hard, work smart, and think of the kids. Every time you open an envelope, imagine the flap is like a mouth that is whispering to you, “work hard, work smart, think of the kids.” You may think I have gone “doolally” but I know you can do it.

So, what are we going to do? I'll let Giovanna conclude the briefing. Thank you.

**Appendix B: Pictures of Material**

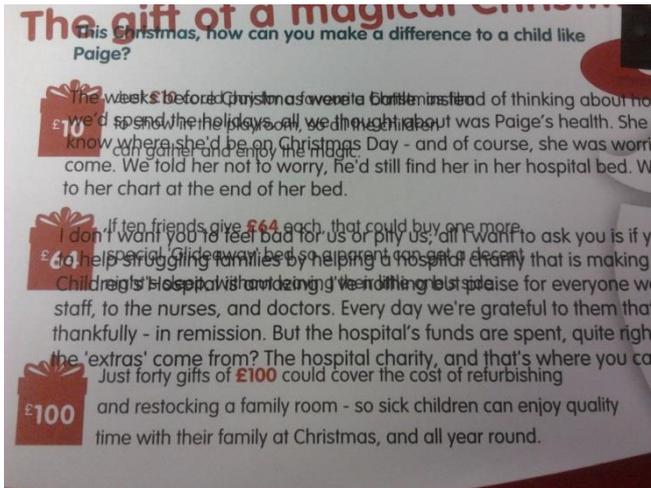
Setup for instruction sessions at the Adecco office:



Materials to assemble (large envelope, donation letter, donation form, return envelope)



A faulty donation letter:



A completed stack of 10 envelopes (secured with a rubber band):



Completed envelopes in a box:



## **Appendix C: Debriefing Letter Sent to Participants**

Leaders' communication and workers' motivation: the effect of charismatic leadership

Last week, you worked for the Birmingham Children's Hospital (BCH). Besides making it possible for the BCH to send out over 34,000 letters and conduct a large direct mail fundraising campaign, your work has provided data for a research study.

The purpose of the study is to investigate the effects of charismatic leadership on workers' effort. Based on past research, we expect charismatic leaders to be more effective in motivating workers than leaders who lack charisma. However, no previous study has demonstrated this rigorously in an actual work environment, by monitoring effort of workers exposed to charismatic and non-charismatic leaders. The results of such a study can be of great interest for firms, government agencies and charitable organizations seeking ways to motivate their employees and members.

The study is experimental in nature. Participants were randomly assigned to either a team leader who employed charismatic communication techniques when explaining the work task to them, or to a leader who did not use these communication techniques. We also wanted to compare the effect of charismatic leadership to that of monetary incentives: for this reason, some participants were randomly assigned to receive a monetary bonus for completing a large number of envelopes. The main outcome we measured was the number of letters stuffed by each participant over the work session. Thus, the reason why we did not debrief you after your session was over was because we wanted to avoid having information contamination effects between participants in different versions of the experiment.

Your performance in the work task will be absolutely confidential. Within the study, you are identified exclusively through a code number, and only people who are associated with this research will see the performance associated with the code. Note too that we would like you to maintain confidentiality about the treatments we have disclosed to you-- please do not tell anyone about the details of this study. Remember, a crucial goal of this study is to observe behaviour in a natural work environment. We may conduct similar studies in the future, and if other workers know about this study before they participate, their data will be biased and thus cannot be included.

We greatly appreciate your participation in this study. If you are interested in obtaining a copy of the results once the study is complete, you may contact the primary

researcher at the University of Birmingham, Dr. Giovanna d'Adda at [g.dadda@bham.ac.uk](mailto:g.dadda@bham.ac.uk). If you have a more general interest in this area of research, you may also contact Dr. d'Adda.

If you have any complaints, concerns, or questions about this research, please feel free to contact, Dr. Giovanna d'Adda at [g.dadda@bham.ac.uk](mailto:g.dadda@bham.ac.uk) or the Research Ethics Committee at [dsfa@bham.ac.uk](mailto:dsfa@bham.ac.uk).

Thank you very much for your participation!!

## Appendix D: Instructions for Subjective Manipulation Check

### 1. Instructions to participants:

We are interested in your perceptions about leadership. In the next few minutes, you'll see a video of Mike, whose job it was to brief part-time workers about the task they were about to do. The job of the workers was to stuff letters into envelopes, which would be sent all across England to raise money for Birmingham's hospital charity. So, please put yourself in the shoes of a part-time worker while doing this task.

[Participants then watch the video]

### 2. Instructions to participants:

Now that you have seen the video of Mike, please take a few minutes to rate him. Please use the scale provided.

0 = Not at all

1 = Once in a while

2 = Sometimes

3 = Fairly often

4 = Frequently, if not always

Based on the video you have seen, Mike:

1. Instils pride in me for being associated with him/her
2. [item]<sup>15</sup>
3. [item]
4. [item]
5. Talks about their most important values and beliefs
6. [item]
7. [item]
8. [item]
9. Talks optimistically about the future
10. [item]
11. [item]
12. [item]

---

<sup>15</sup> We only provide example items and do not list all the items here for copyright reasons. The full questionnaire is available from the publisher, [www.mindgarden.com](http://www.mindgarden.com)

Now we are interested in your general impressions of Mike. Please use the following scale:

0 = not at all to

1 = a little

2 = some

3 = pretty much

4 = very much

As concerns Mike in the video you have seen:

1. How much leadership did he exhibit?
2. To what extent do you think he is typical of a leader?
3. How much leadership did he engage in?
4. How willing would you be to choose him as the leader of your work group in another context?
5. To what degree does he fit your image of what a leader should be?



Sentence	Text	c1	c2	c3	c4	c5	c6	c7	c8	c9
23	We don't want to turn away donors by sending them bad letters.									
24	A bad letter might not help raise money.									
25	Also, please think of the children when you do your job because every letter can potentially help a child.						1			
26	So you might think, well, I will just do what I have to—my extra effort won't really help.				1					
27	Yes, your extra effort will help!									1
28	Just think of how many of you are in this room and all the other people we have hired to do this task as well.									
29	Every letter helps.						1			
30	The more letters you can do for us, the more letters we have to send out in our fundraising drive.									
31	This of course means that the more donors we can potentially reach and the more you can potentially help the charity.									
32	At the end of the day, we may be able to make a much bigger difference to these sick children, which is really what matters most of all.						1			
33	So please do your best by doing your job as well as you can, to the best of your ability.									
34	Doing so will really help make a difference to the children.						1			
35	Of course, this will help you to earn some extra money too, so we all winning here.									
36	Remember, each letter is important: The more letters we send out the better.									
37	So do work as hard as you can and do work as precisely as you can.									
38	That all's I have to say: Please do the best that you can because in this way we can all better help the charity.						1			
39	Thank you for listening to me.									
40	I'll let Giovanna conclude the briefing.									
41	Thank you.									
	Total by tactic				4	2	9			1

Note: Coded categories include: c1 = metaphors or similes, c2 = rhetorical questions, c3 = stories or anecdotes, c4 = contrasts, c5 = lists, c6 = moral conviction, c7 = sentiments of the collective, c8 = sets high/ambitious goals, c8 = creates confidence goals can be achieved. A “1” in the coded category indicates the presence of a charismatic leadership tactic.

### Coded results for the Charismatic Speech:

Sentence	Text	c1	c2	c3	c4	c5	c6	c7	c8	c9
1	Hi: My name is Mike and I am working with the team that has hired you.									
2	My main task is to brief you on the importance of what you are going to do; but, in my spare time I will be stuffing envelopes too, along with my colleague Giovanna.				1					
3	In the next couple of minutes though, I just want to explain to you the nature of the fundraising campaign.									
4	So, why are you here?		1							
5	Some of you may think you are here just to stuff envelopes to earn a few quid.									
6	However, by being here you are going to do something special by helping Birmingham's hospital charity achieve its mission; and, this is a noble mission.				1	1	1			
7	Your efforts will make a difference to sick children: Children with cancer, children with leukaemia, and children with all sorts of serious illnesses.					1	1			
8	This is something worth doing; I think it is a right thing to do.						1			
9	Just how are you going to do something special?		1							
10	Well, the letters you have are written to convince a potential donor to help the charity.									
11	In a way, the letter is a ticket for a child to attend Christmas.	1								
12	Let me tell you why.									
13	Many gravely sick children will spend Christmas in hospital.									
14	What must that be like?		1							
15	For the parent?		1			1				
16	The child?		1							
17	The family?		1							
18	The charity will help families who cannot afford to be near their children during the Christmas period.									
19	They will help them by paying for the parents' accommodation in or near the hospital, by providing a nicely decorated room so that the families can open their Christmas presents in a cosy environment, by providing a playroom and toys for the children.					1				
20	Every envelope you stuff with a letter will make a difference because it is only through reaching potential donors that we can raise money.						1			
21	So, I want you to do three things to give the kids a ticket to Christmas: work hard, work smart, and think of the kids you will help.	1				1	1		1	
22	First: Work hard.					1				
23	You will be paid regardless of how many envelopes you stuff.				1					
24	However, the more you do, the better; the more envelopes you stuff the more money we can potentially raise.									
25	Second: Work smart.									
Sentence	Text	c1	c2	c3	c4	c5	c6	c7	c8	c9

26	Follow the instructions you have been given, fold the letters and seal the envelopes neatly and maintain correct records.					1				
27	Printing this many letters sometimes produces printing faults.									
28	So, scan the letters quickly to ensure that they are clean.									
29	We don't want to turn away donors by sending them bad letters.						1			
30	A bad letter is a bad ticket.	1					1			
31	Third: Think of the kids when you do your job.									
32	You are not just stuffing envelopes to earn money.				1					
33	You are stuffing envelopes to help sickly kids too.									
34	So you might think, well, I will just do what I have to—will my extra effort really help?		1					1		
35	Yes, it will!									1
36	This reminds me of story about an old man who while walking along the seashore noticed a girl picking up starfish and throwing them into the sea.			1						
37	The old man approached her saying: “what are you doing?”									
38	She replied: “I am throwing starfish into the sea, because the sun is coming up and the starfish will die.”									
39	“But,” said the man, “there are thousands of starfish, the sun is high, and the tide is going out.									
40	How can you possibly make a difference?”									
41	The girl bent down, picked up a starfish, threw it into the sea and said: “well, I made a difference to that one.”						1			
42	Remember, every letter is a ticket for a child to attend Christmas: the more tickets we issue, the better.	1								
43	Work hard, work smart, and think of the kids.					1	1		1	
44	Every time you open an envelope, imagine the flap is like a mouth that is whispering to you, “work hard, work smart, think of the kids.”	1				1	1		1	
45	You may think I have gone “doolally” but I know you can do it.							1		1
46	So, what are we going to do?		1							
47	I'll let Giovanna conclude the briefing.									
48	Thank you.									
	Total by tactic	5	8	1	4	9	10	2	3	2

Note: Coded categories include: c1 = metaphors or similes, c2 = rhetorical questions, c3 = stories or anecdotes, c4 = contrasts, c5 = lists, c6 = moral conviction, c7 = sentiments of the collective, c8 = sets high/ambitious goals, c8 = creates confidence goals can be achieved. A “1” in the coded category indicates the presence of a charismatic leadership tactic.