Do agents care for the mission of their job? A field experiment

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Abstract

Economic theory suggests that agents care for the outcomes they produce. This paper studies the conditions under which a pro-social mission of a job affects workers' motivation to perform well. In particular, we investigate whether it makes a difference if workers actively decide upon doing a mission-oriented job or are exogenously assigned. We find that a pro-social mission itself affects only a small group of workers in a positive way whereas self-selection into a mission-oriented job leads to a highly significant overall performance boost.

JEL Classification: C93, J33, M52, M55

Keywords: mission, field experiment, motivation, performance, sorting

Theoretical models (e.g. Francois 2000; Besley and Ghatak 2005; Cassar 2014) postulate that workers care for the outcomes they produce. If we think of these outcomes as collective goods, various obvious examples emerge: teachers who wish their lessons to be effective, policemen who try to ensure a safe environment, or researchers who want their findings to attract attention. Recent experimental evidence (Ariely, Kamenica and Prelec 2008; Bäker and Mechtel 2013; Chandler and Kapelner 2013; Chadi, Jeworrek and Mertins forthcoming) has shown that already a slight manipulation of a task's meaning or the lost meaning even in a previous, completely unrelated task results in considerable performance changes.

Hence, it is not at all hard to imagine that those employees who are dedicated to the mission of their organization are more satisfied with their work (Zoutenbier 2014) or more likely to donate labor in terms of unpaid overtime (Gregg, Grout, Ratcliffe, Smith and Windmeijer 2011; Danilov and Vogelsang 2014). Despite persistent interest in uncovering performance effects caused by an organization's mission, empirical evidence is still scare and to some extent contradictory. While some studies point to a positive impact of mission match and individuals' willingness to exert effort (Gerhards 2013; Koppel and Regner 2014; Carpenter and Gong forthcoming), recent laboratory experiments do not observe such a relationship, at least not among a given population. Indeed, mission effects often seem to be confined to particular subgroups such as women (Tonin and Vlassopoulos 2010), individuals with strong altruistic preferences (Carpenter and Knowles Myers 2010; Dur and Zoutenbier 2014) or those who are willing to pay to support their preferred NGO (Fehrler and Kosfeld 2014).

Similarly, working for a socially responsible employer – expressed by corporate social responsibility practices or corporate philanthropy in terms of donations from firm profits to a charity or corporate volunteering – is

associated with lower salary requirements (Burbano 2014a) as well as higher effort levels in both laboratory and field settings (Burbano 2014b; Tonin and Vlassopoulos forthcoming). It has, however, also been shown that such performance effects are far from universal: prosocial incentives increase workers' efforts only in cases when incentive stakes are low (Charness, Cobo-Reyes and Sanchez 2014; Imas 2014).

The present paper complements this literature by reporting the results from a natural field experiment with 267 temporary workers in which we analyze the conditions under which a pro-social mission enhances workers performance compared to a purely commercial job. Therefore, we partnered with a local advertising agency with customers from both the private and the nonprofit sector which planned to distribute several thousand advertising and charity letters. All workers were paid a fixed wage for enveloping letters as a one-time job. Their job differed only in (a) the content of the letter —which involved either a social mission (call for recruiting new volunteers for local charities) or commercial advertisements for local shops— and (b) the allocation method of these letters. Workers were either randomly allocated to one of the letters or they were allowed to choose between two different ones.

By exogenously allocating the commercial and the mission letters, the setting allows estimating a pure incentive effect on performance among both a given workforce and various subgroups. In line with previous findings (Tonin and Vlassopoulos 2010; Fehrler and Kosfeld 2014), we find that the scope for effort increases through the provision of mission is limited: there is no significant difference between mission and no mission regarding the whole sample. Only when focusing on workers with a high social commitment, a particular subgroup recently identified to be highly prone to react to a job's mission, we observe a large increase in output.

The question arises whether these results also hold if the mission is not given exogenously but chosen individually. Hence, we allowed another group of workers to decide between the commercial and the mission-oriented job. As expected, the vast majority of workers sorted themselves into the mission-oriented job since it was costless to do so. This allows analyzing a workforce which consciously sorted into the mission-oriented job while having heterogeneous mission preferences. By comparing effort provision under endogenous versus exogenous mission keeping the mission content and monetary incentives constant, we estimate a convergence effect which was positive and highly significant: self-selection into a mission-oriented job increases performance by about 15 percent and compared to the exogenously provided mission, this effect is not driven by a particular subgroup. Further control treatments rule out the possibility that information about the alternative job or the choice itself (independent of the underlying pro-social mission) cause this performance effect: Performance was similar to the exogenous mission allocation, indicating that workers indeed react positively to the fact of having consciously chosen a mission-oriented job.

I Study Design

To investigate under which conditions a pro-social mission motivates workers to perform well, we partnered with a local advertising agency which has customers from both the private and the nonprofit sector. This agency planned to distribute within the next weeks several thousand advertising and charity letters. The need to envelope these letters offered the opportunity to conduct a natural field experiment (Harrison and List 2004) in which we were able to observe temporary staff in a controlled but natural working environment, without the employees being informed that they were taking part in an experiment.

We attracted prospective workers' attention by postings on black boards (supermarkets, public libraries, university campus, etc.) and small ads via regional online platforms. People interested in the project could apply personally. Some of them brought a résumé, while others filled in a short questionnaire. We briefly informed them about the background of the campaign and asked them some standardized questions regarding experience in similar jobs and potential working times. Applicants could directly earn some money by enveloping letters on sports information. We paid them 5 EUR for their thirty minutes lasting input. The task consisted of enveloping letters, stamping the letters on the front and on the back, and binding together each ten letters with a rubber band so that the agency was able to keep an overview on the amount of work done. Since the task was the same for all applicants and differed from the later task only in the neutral (neither non-profit nor for-profit) content, we use the number of enveloped letters as an indicator of their performance.

While we received a performance indicator by 267 workers, 246 individuals showed up at the allocated work shift. For a working time of two hours, people received 20 EUR flat. Upon arrival at the pre-arranged place and time, we welcomed workers and instructed them according to a short but detailed script. To rule out peer effects, each worker was allocated a different meeting time and the instructor briefed only one worker at a time. Furthermore, employees worked alone in single offices without any coworkers or supervisors around. All offices were equipped completely identically with a desk, two office chairs and about 400 letters and envelopes in each office.[1] Workers were also told that breaks could be taken whenever necessary. Besides, workers were told in advance that this job is one-shot, i.e. would be a unique opportunity to earn

[1] During the 30 minutes trial work period, workers enveloped on average 37.45 letters, hence, 400 letters for a two-hour shift was such a large number so that it was clear that enveloping all of them would be impossible and no one should feel obliged to try to master it.

money with this employer. Given these particular circumstances, workers were likely to feel fully self-responsible for the managed workload.

We randomly allocated individuals to one out of five treatments. The task was always identical, i.e. enveloping and stamping letters, but (a) the content of the letter and (b) the allocation method differed between treatments. The content involved either a social mission (call for recruiting new volunteers for local charities) or not (commercial advertisements for a local shop). It was made clear that each letter could potentially lead to one more customers or one more individual doing volunteer community work. The method of how we allocated workers to the mission-oriented or a commercial letter varied systematically between treatments in that some workers could choose according to their preferences whereas others were exogenously allocated to one of the letters.

Table 1: Overview of Treatment Conditions

Content of the letter *exogenously given*:	
EXOCOMMERCE	Exogenous allocation of commercial letter (without knowledge about the existence of other letters)
EXOMISSION	Exogenous allocation of pro-social letter (without knowledge about the existence of other letters)
EXOMISSION2	Exogenous allocation of pro-social letter, but workers have also been aware of the commercial letters
Content of the letter *endogenously determined by the worker*:	
ENDOMISSION	Choice between pro-social and commercial letter: Pro-social letter chosen
ENDOCOMMERCE	Choice between pro-social and commercial letter: Commercial letter chosen
ENDOCOMMERCE2	Choice between two commercial letters: Advertisement 1 chosen
ENDOCOMMERCE3	Choice between two commercial letters: Advertisement 2 chosen

Since self-selection always goes along with information about different options, we implemented a third procedure which contained the same

information, but excluded the opportunity to choose. This gives us a clean comparison group which differs in only one factor from the aforementioned. Implementing different allocation procedures allows us to test whether the mission of a job has a different impact depending on specific conditions. The following Table 1 summarizes the different conditions we implemented.

II Results

Descriptive statistics show (see Appendix B.1) that the random allocation of our 267 workers into the different treatments worked very well. This is especially true as regards workers initial performance preceding the treatment intervention, even though there is a generally huge variation in the number of enveloped letters throughout these 30 minutes — from 15 to 79 letters. We only find a somewhat weaker initial performance for the 21 workers who did not come back for the main job (dropouts). Figure 1 shows the even larger variation in performance for the two working hours after treatment intervention, with a minimum of 86 and a maximum of 335 enveloped letters. On average, workers envelope about 174.81 letters.

Figure 1: Overall Performance Distribution

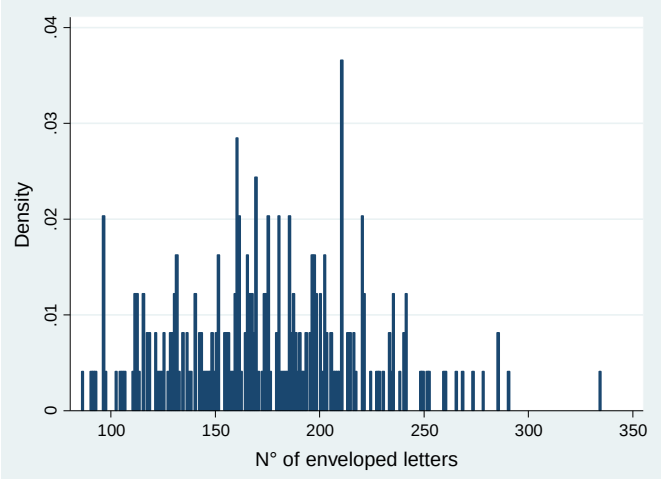
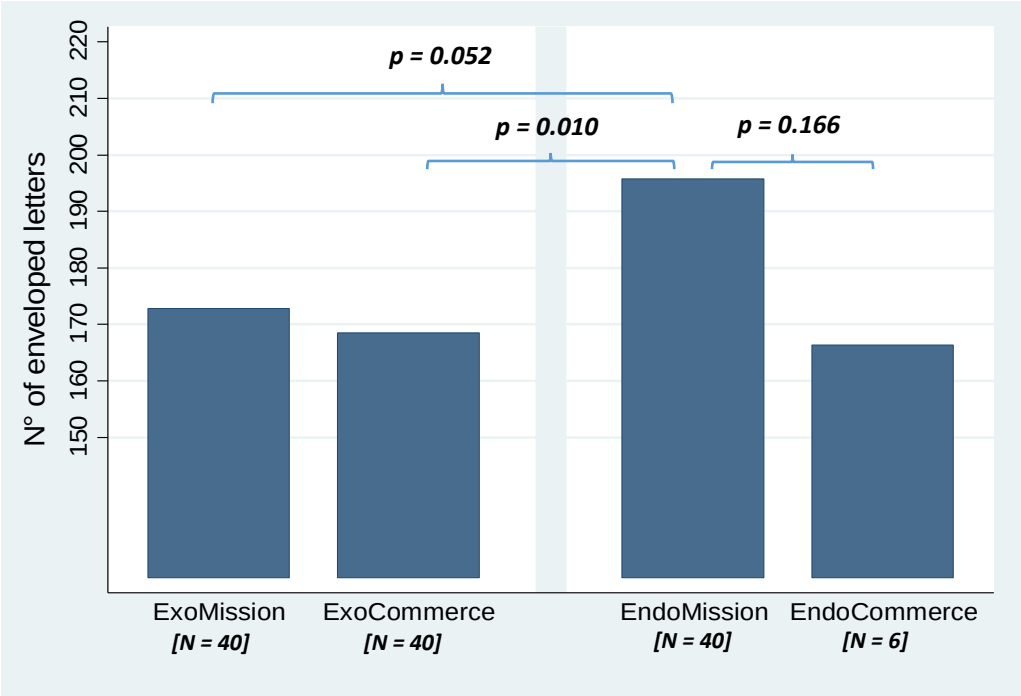


Figure 2 provides workers' average performance for our main treatments of interest. By comparing the treatments EXOCOMMERCE and EXOMISSION, we can analyze whether there is a pure motivational effect of the mission itself. Workers exogenously endowed with a mission, however, do not perform better than those workers enveloping letters for a commercial purpose (172.83 vs 168.53, $p = 0.637$, Wilcoxon rank sum test, two-sided).

Figure 2: The Impact of a Pro-Social Mission on Workers' Performance



Notes: **Wilcoxon rank sum test, two-sided.**

Since one might suspect that a mission predominantly affects individuals with stronger pro-social preferences, we also employ information about workers volunteering activities (received during application for the job) as an indicator for workers' pro-social motivation. Within our whole sample, 34.83% of our workers have been volunteering for at least six months which perfectly

matches the data from the German Survey on Volunteering from 2009 (Hagen and Vogel 2012).[2]

By splitting the sample into volunteers and individuals with no or only minor volunteering activities (less than six months), we again find no difference between the treatments EXOMISSION and EXOCOMMERCE for the latter group (p = 0.385). Volunteers, however, seem to be positively affected by the underlying pro-social mission: They envelope on average 204.64 letters if the letter aims at attracting new volunteers whereas they only envelope 172.64 commercial letters, resulting in an economically significant raw difference of almost 18% (p = 0.093, but with only 14 observations each). These numbers are in line with findings from the laboratory (e.g. Fehrler and Kosfeld 2014; Tonin and Vlassopoulos 2010) in which mission effects only emerge within specific subgroups. However, already the initial performance of our volunteering workers tends to be slightly (even though statistically insignificant, p = 0.223) higher in the mission treatment, but regression analysis, in which we are able to control for initial productivity, confirm our previous findings (see Appendix B.2).

Turning to the treatment in which we asked workers to decide upon the type of letter they wanted to envelope (pro-social or commercial), without any impact on their payment, it appears the vast majority (87%) opts for the pro-social mission, independent of being a volunteer themselves. The average performance (195.75 letters) in this treatment group (ENDOMISSION) is significantly higher to both EXO-treatments, suggesting that the commitment to a pro-social cause is stronger if you actively decided upon doing something good. Comparing e.g. the treatments EXOMISSION and ENDOMISSION, there is a

[2] The survey is conducted every 5 years. The data from 2014 is not available yet. Further information can be found at: http://www.dza.de/en/fdz/german-survey-on-volunteering.html.

difference of roughly 27 letters enveloped, which is a sizeable performance increase of more than 15%.

To rule out the possibility that this effect is solely driven by the information about the different options —which is an inevitable aspect of self-selection— we implemented the treatment EXOMISSION2 as a control treatment: Workers had to envelope the pro-social letters but at the same time, they have been aware of the existence of the commercial advertisements. Workers' performance in the two treatments EXOMISSION and EXOMISSION2, however, does not differ significantly (p = 0.519). Hence, the additional information about the different options does not cause the positive performance effect in treatment ENDOMISSION. Still, this effect might not be due to choosing the pro-social mission but due to the choice itself. Therefore, we have to look at workers who have not chosen the pro-social mission but the commercial letters, treatment ENDOCOMMERCIAL in Figure 2. Their average performance (166.33 letters) is almost identical to workers' performance in the two EXO-treatments so that it is rather unlikely that the choice itself boosts employees' performance. This finding, however, has to be backed up by the workers allocated to the treatment in which we asked them to choose between two different commercial letters (ENDOCOMMERCE2/ ENDOCOMMERCE3) since only very few workers chose the commercial letters when given the pro-social alternative. In that treatment, the choices are more balanced (47.5 percent opted for advertisement 1 and 52.5 percent for advertisement 2) but again, workers' performance is not significantly different from those workers who have been exogenously given a letter with the same content (EXOCOMMERCE vs. EXOCOMMERCE2, p = 0.741).[3] Hence, we can conclude that a pro-social mission indeed strongly encourages workers but only if they actively decided in favor of a mission-oriented job.

[3] Specification (3) in Appendix B.3 confirms that only workers in treatment ENDOMISSION perform significantly different from all the remaining workers.

To cater for the concern that this result might again be driven by a specific subgroup, we especially look closer at those groups which have been found to be sensitive to a pro-social mission in previous research. Regression analysis, however, shows that the performance change is independent of workers' initial ability, their volunteering activities or gender (see Appendix B.3) and, hence, that the motivational effect of an actively chosen mission is a rather widespread phenomenon.

III Concluding Remarks

In this paper, we have provided field experimental evidence on the importance of a job's mission. In holding the monetary incentives as well as the work task exactly constant between various conditions, we were able to study the conditions under which workers provide the highest performance.

We find that randomly allocating a mission-oriented job by assigning the respective letters does not yield any performance effect among a given work force compared to the random allocation of commercial letters. This, however, does not mean that a job's mission is not decisive in general or in our particular setting. Inspired by a previous finding by Fehrler and Kosfeld (2014), we test whether a job's mission works only in interaction with self-selection. In particular, we analyzed performance if agents sorted themselves in a mission-oriented job. Since the alternative option was a commercial purpose, almost all workers decided in favor of the mission-oriented job. This allows excluding the possibility that potential sorting effects are driven by a small but highly motivated subgroup. Therefore, our empirical findings point to the active choice of a mission-oriented job (and not the choice itself) as an important and previously neglected aspect of self-selection. Future research should try to establish the underlying psychological mechanisms leading to such strong

behavioral effects. One possible explanation might be that if workers actively decide upon doing something good and accepting the concomitant responsibility, they do not want to make a fool of themselves and, hence, individuals increase their effort.

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APPENDIX

Appendix A: Experimental Design and Procedures

[Treatment Scripts to be translated]

Appendix B: Further Empirical Results

B.1: Descriptive Statistics by Treatment Group

	ExoMission [$N=40$]	ExoCommerce [$N=40$]	EndoMission/EndoCommerce [$N=46$]	EndoCommerce2/EndoCommerce3 [$N=80$]	ExoMission2 [$N=40$]	Dropouts [$N=21$]	p-value
Initial performance	37.30	37.55	37.61	38.01	37.70	34.57	0.941
Performance during 2-hours shift	168.53	172.83	191.91	168.34	176.3	--	0.053
Socio-demographics:							
Female	0.650	0.675	0.630	0.788	0.650	0.619	0.364
Age	25.70	24.25	24.22	24.79	24.34	25.56	0.806
Foreign	0.175	0.175	0.152	0.051	0.075	0.059	0.154
Regular volunteers	0.350	0.350	0.391	0.313	0.350	0.381	0.968

	EndoMission [$N=40$]	EndoCommerce [$N=6$]	EndoCommerce2 [$N=38$]	EndoCommerce3 [$N=42$]	p-value
Initial performance	37.63	37.5	38.42	37.64	0.929
Performance during 2-hours shift	195.75	166.33	167.87	168.83	0.020
Socio-demographics:					
Female	0.625	0.667	0.684	0.881	0.055
Age	24.25	24.00	25.30	24.34	0.507
Foreign	0.15	0.167	0.054	0.048	0.288
Regular volunteers	0.425	0.167	0.342	0.286	0.451

Note: Workers have been randomly allocated into the treatments depicted in the upper table. Afterwards, workers self-selected into the particular Endo-treatments outlined in the lower table. p-values received from Kruskal-Wallis equality-of-population rank test respectively Pearson's chi-squared.

B.2 Robustness Checks Using Regression Analysis

	(1)	(2)	(3)
EXOCOMMERCE	*Ref.*	*Ref.*	*Ref.*
EXOMISSION	3.359	-6.081	3.363
	(7.029)	(8.103)	(6.875)
Volunteer	8.870	-4.402	5.140
	(7.897)	(10.961)	(3.907)
EXOMISSION *X* volunteer	--	26.694*	--
		(15.628)	
Female	4.208	5.766	2.372
	(6.977)	(7.077)	(4.044)
Age	-0.054	-0.106	-0.092
	(0.404)	(0.378)	(0.248)
Foreign	-1.241	-1.753	1.427
	(9-347)	(9.307)	(6.124)
Initial performance	3.030***	2.964***	2.977***
	(0.282)	(0.269)	(0.170)
EXOMISSION2	--	--	6.616
			(6.722)
ENDOCOMMERCE	--	--	-2.029
			(9.299)
ENDOCOMMERCE2	--	--	-3.855
			(5.589)
ENDOCOMMERCE3	--	--	-1.226
			(5.995)
ENDOMISSION	--	--	25.833***
			(6.846)
Constant	51.273***	58.786***	56.264***
	(17.268)	(16.008)	(11.211)
Observations	80	80	244
Adjusted R^2	0.600	0.613	0.595

Note: Dependent variable is the total number of enveloped letters during the two-hours shift. The table reports OLS coefficient estimates (robust standard errors are reported in parentheses). In specifications (1) and (2), only workers from the treatments EXOMISSION and EXOCOMMERCE are considered, whereas specification (3) covers all workers (two workers dropped due to missings as regards their birthdate). Significance levels are denoted as follows:

*** Significance at the 1 percent level.

** Significance at the 5 percent level.

* Significance at the 10 percent level.

B.3 Testing for Heterogeneity

	(1)	(2)	(3)
EXOCOMMERCE	*Ref.*	*Ref.*	*Ref.*
ENDOMISSION	23.135***	23.137**	28.461***
	(7.934)	(11.417)	(8.849)
Volunteer	-2.886	1.568	1.133
	(11.139)	(7.764)	(7.745)
ENDOMISSION *X* volunteer	7.767	--	--
	(15.837)		
Female	0.531	-2.521	0.492
	(7.500)	(9.112)	(7.751)
ENDOMISSION *X* female	--	4.573	--
		(14.142)	
High ability workers	--	--	6.622
			(15.169)
ENDOMISSION *X* high ability	--	--	-4.572
			(15.061)
Age	-0.089	-0.090	-0.086
	(0.450)	(0.444)	(0.456)
Foreign	2.639	1.170	2.456
	(10.260)	(10.360)	(10.616)
Initial performance	2.941***	2.915***	2.776***
	(0.318)	(0.310)	(0.515)
Constant	61.315***	63.004***	62.922***
	(18.723)	(18.612)	(21.122)
Observations	80	80	80
Adjusted R^2	0.595	0.594	0.589

Note: Dependent variable is the total number of enveloped letters during the two-hours shift. The table reports OLS coefficient estimates (robust standard errors are reported in parentheses). Only workers from the treatments EXOCOMMERCE and ENDOMISSION are considered. Significance levels are denoted as follows:
*** Significance at the 1 percent level.
** Significance at the 5 percent level.
* Significance at the 10 percent level.